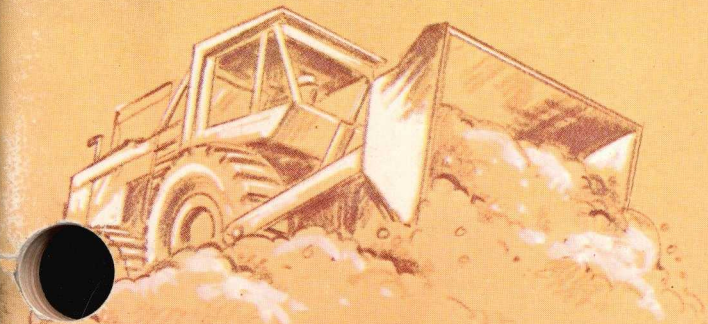
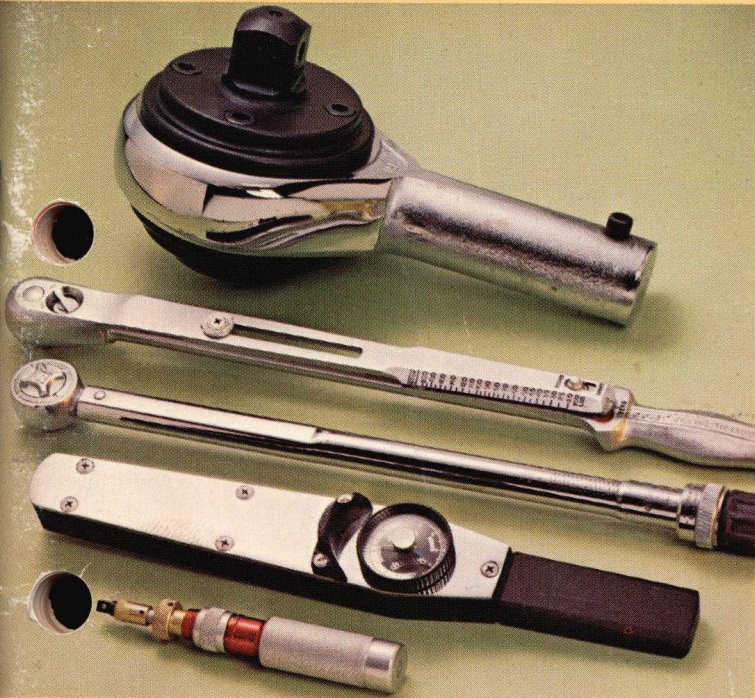
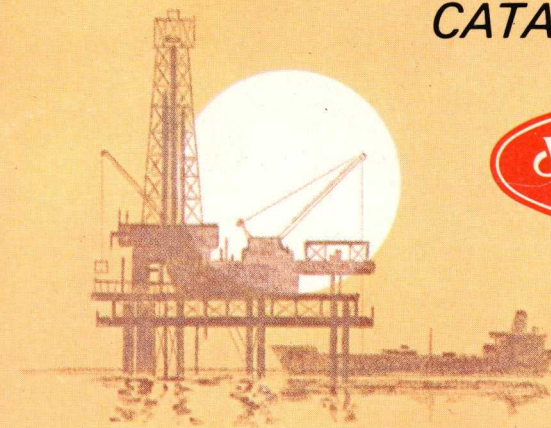
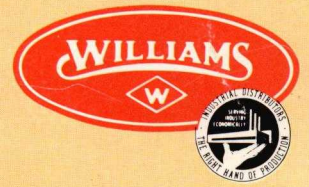


TRW J. H. WILLIAMS DIVISION

CATALOG 309



TOOLPOWER

For Maintenance, Construction, Production

TRW J. H. WILLIAMS DIVISION

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CATALOG 309

This catalog supersedes all previous issues. Finishes, materials and designs are subject to change without notice or regard to catalog descriptions. We reserve the right to discontinue items at any time without notice.

PRICES

For prices applicable to items listed in this catalog, see our current price list. All prices are subject to change without notice.

ORDER NOMENCLATURE

Throughout our catalog we have indicated, above the listings, samples of order nomenclature. By adopting this procedure our customers can reduce the cost of paper work and facilitate order entry for improved service.

Non-standard or non-stock items should be fully described on orders accompanied by prints or drawings where possible.

Following are the registered trade marks under which we manufacture and sell our products . . .



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ESTABLISHED 1882

**J.H. WILLIAMS DIVISION OF TRW INC.
400 VULCAN ST., BUFFALO, N.Y. 14207**

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FEDERAL SPECIFICATIONS

Federal Specifications listed throughout this catalog are intended as a guide to classify types of tools and do not mean that the tool in each case is in full conformity to Federal Specifications in their strictest form. Contact our factory for specific compliance or deviation information.

TELEX

For the convenience of our customers we are equipped with TELEX communication facilities. Numbers are listed above.

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KEY TO WILLIAMS NUMBERING AND PREFIXING SYSTEM

In addition to straight numerical designations, many numbers are preceded with alphabetical prefixes in this catalog. This has been done to eliminate duplications and to assist users in locating products in this catalog by number or prefix.

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ALLOY WRENCHES AND SETS

ALLOY
WRENCHES
AND
SETS

For technical information about these products

Ask for Technical Bulletin TB-121 which covers design features, quality wrench manufacture and competitive comparisons of Williams Superjustables and Superrenches.

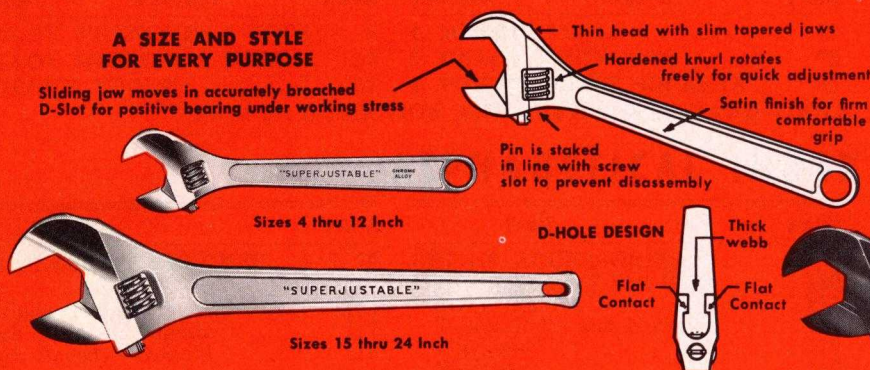


Never try to extend the length of a wrench by slipping a pipe over it. The extra leverage may well exceed the strength for which it was designed.

We design tools with your safety in mind.

SUPERJUSTABLE® WRENCHES

SELECTED ALLOY STEEL

A SIZE AND STYLE
FOR EVERY PURPOSESliding jaw moves in accurately broached
D-Slot for positive bearing under working stressFOR DETAILED PRODUCT
INFORMATION ASK FOR
TECHNICAL BULLETIN No. TB-121

REGULAR—CHROME PLATED

Drop-forged, heat-treated and chrome-plated over nickel.
Finished with bright head faces and satin finish handles.
Individually packaged.**Example of Order Nomenclature: "AP-12 CHROME ADJUSTABLE"**FEDERAL SPEC: GGG-W-631B-5, TYPE 1, CLASS 1,
OPEN END 22½° HEAVY DUTY ADJUSTABLE

Parts set consists of one each Knurl, Pin and Spring.

No.	Size Inch	Capacity	Thickness Head		Wgt. Each Lbs.	Replacement Parts	
			Jaw Tip	Extreme		Jaw No.	Set No.
AP-4	4	1/2	9/64	5/16	.11	AP-4-1	AP-4-2
AP-6	6	3/4	7/32	3/8	.27	AP-6-1	AP-6-2
AP-8	8	1	17/64	1/2	.52	AP-8-1	AP-8-2
AP-10A	10	1-1/8	23/64	19/32	.90	AP-10-1	*AP-10A-2
AP-12	12	1-5/16	15/32	23/32	1.6	AP-12-1	AP-12-2
AP-15	15	1-3/4	19/32	31/32	3.6	AP-15-1	AP-15-2
AP-18	18	2-1/16	23/32	1-3/16	6.	AP-18-1	AP-18-2
AP-24	24	2-7/16	7/8	1-3/8	9.1	AP-24-1	AP-24-2

REGULAR CHROME—CEMENTEX HANDLES



Standard Cementex insulation on Williams Superjustable Wrenches is designed to withstand a minimum of 5,000 RMS AC volts for one minute. This is a requirement of many power companies. Cementex insulated handles are tested 100% prior to shipment. In addition to protecting the hand, cementex insulation prevents metal to metal contact with surrounding objects. Cementex is not susceptible to peeling and cracking as is the case with some molded insulations.

Example of Order Nomenclature: "APC-6 CEMENTEX ADJUST."

Parts set consists of one each Knurl, Pin and Spring.

No.	Size Inch	Capacity	Thickness Head		Wgt. Each Lbs.	Replacement Parts	
			Jaw Tip	Extreme		Jaw No.	Set No.
APC-6	6	3/4	7/32	3/8	.27	AP-6-1	AP-6-2
APC-8	8	1	17/64	1/2	.52	AP-8-1	AP-8-2
APC-10A	10	1-1/8	23/64	19/32	.90	AP-10-1	*AP-10A-2
APC-12	12	1-5/16	15/32	23/32	1.6	AP-12-1	AP-12-2

SUPERJUSTABLE® PARTS ASSORTMENTS

No. APA-88B
Industrial Finish
No. APA-88C
Chrome Plated
Weight, 2.5 lbs.

Box contains 88 parts as follows:

Size	Jaws	Knurls	Pins	Springs
4"	4	4	4	4
6"	6	6	6	6
8"	6	6	6	6
10"	4	4	4	4
12"	2	2	2	2

*Parts set consists of one each Knurl, Worm Plunger, Pressure Spring and Pressure Plunger.

REGULAR—INDUSTRIAL FINISH

Drop-forged, heat-treated, industrial finish with satin
handles for firm, safe grip. Individually packaged.
Here are all the features in design and strength plus economy.**Example of Order Nomenclature: "AB-8 ADJUSTABLE"**

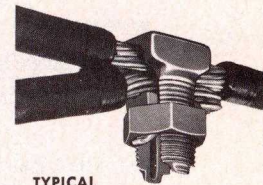
Parts set consists of one each Knurl, Pin and Spring.

No.	Size Inch	Capacity	Thickness Head		Wgt. Each Lbs.	Replacement Parts	
			Jaw Tip	Extreme		Jaw No.	Set No.
AB-4	4	1/2	9/64	5/16	.11	AB-4-1	AP-4-2
AB-6	6	3/4	7/32	3/8	.27	AB-6-1	AP-6-2
AB-8	8	1	17/64	1/2	.52	AB-8-1	AP-8-2
AB-10A	10	1-1/8	23/64	19/32	.90	AB-10-1	*AP-10A-2
AB-12	12	1-5/16	15/32	23/32	1.6	AB-12-1	AP-12-2
AB-15	15	1-3/4	19/32	31/32	3.6	AB-15-1	AP-15-2
AB-18	18	2-1/16	23/32	1-3/16	6.	AB-18-1	AP-18-2

EXTRA CAPACITY STYLE



Extra capacity Superjustable wrenches often eliminate the need to use the next longer wrench size. Ideal for work where the convenience of a smaller, lighter wrench is desired. The 12 inch Superjustable with 1-1/2 inch capacity, is ideal for linemen working on cable connectors or taps up to 4/0 wire size. Handy for 3/4" brass fittings which are the most popular sizes used in connecting lines to water meters.

TYPICAL
CABLE CONNECTOR

Parts set consists of one each Knurl, Pin and Spring.

No.	Size Inch	Cap.	Thickness Head		Wgt. Each Lbs.	Replacement Parts	
			Jaw Tip	Extreme		Jaw No.	Set No.
APU-6	6	15/16	13/64	3/8	.28	APU-6-1	AP-6-2
APU-8	8	1-1/8	1/4	31/64	.53	APU-8-1	AP-8-2
APU-10A	10	1-5/16	11/32	37/64	.92	APU-10-1	*AP-10A-2
APU-12	12	1-1/2	15/32	23/32	1.8	APU-12-1	AP-12-2

EXTRA CAPACITY—CEMENTEX HANDLE

APUC-12	12	1-1/2	15/32	23/32	1.8	APU-12-1	AP-12-2
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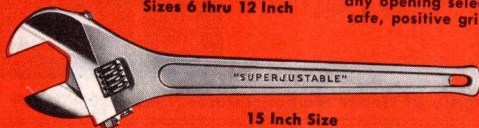
LOCKAJUST WRENCHES

SELECTED ALLOY STEEL

FOR DETAILED PRODUCT
INFORMATION ASK FOR
TECHNICAL BULLETIN No. TB-121



Sizes 6 thru 12 Inch



15 Inch Size



Push down to unlock
with thumb or finger.
No need to change hands

Hardened knurl, when unlocked
rotates freely for quick,
unrestrained
adjustment



Sizes 6 thru 12 Inch



15 Inch Size

LOCKAJUST — CHROME PLATED

Drop-forged, heat-treated and chrome-plated over nickel. Finished with bright head faces and satin finish handles. Individually packaged.

Example of Order Nomenclature:
"APL-15 CHROME LOCKAJUST"

Parts set consists of one each Knurl, Pin and Retainer Ring.

No.	Size Inch	Capacity	Thickness Head		Wgt. Each Lbs.	Replacement Parts	
			Jaw Tip	Extreme		Jaw No.	Set No.
APL-6	6	3/4	7/32	3/8	.27	AP-6-1	APL-6-3
APL-8	8	1	17/64	1/2	.52	AP-8-1	APL-8-3
APL-10	10	1-1/8	23/64	19/32	.90	AP-10-1	APL-10-3
APL-12	12	1-5/16	15/32	23/32	1.6	AP-12-1	APL-12-3
APL-15	15	1-3/4	19/32	31/32	3.6	AP-15-1	APL-15-3

LOCKAJUST — INDUSTRIAL FINISH

Drop-forged, heat-treated, industrial finish with satin finish handles for firm, safe grip. Individually packaged. Here are all the features in design and strength plus economy.

Example of Order Nomenclature:
"ABL-12 LOCKAJUST"

Parts set consists of one each Knurl, Pin and Retainer Ring.

No.	Size Inch	Capacity	Thickness Head		Wgt. Each Lbs.	Replacement Parts	
			Jaw Tip	Extreme		Jaw No.	Set No.
ABL-6	6	3/4	7/32	3/8	.27	AB-6-1	APL-6-3
ABL-8	8	1	17/64	1/2	.52	AB-8-1	APL-8-3
ABL-10	10	1-1/8	23/64	19/32	.90	AB-10-1	APL-10-3
ABL-12	12	1-5/16	15/32	23/32	1.6	AB-12-1	APL-12-3
ABL-15	15	1-3/4	19/32	31/32	3.6	AB-15-1	APL-15-3

LOCKAJUST CHROME-CEMENTEX HANDLES



Standard Cementex insulation on Williams Superjustable wrenches is designed to withstand a minimum of 5,000 RMS AC volts for one minute. This is a requirement of many power companies. Cementex insulated handles are tested 100% prior to shipment. In addition to protecting the hand, cementex insulation prevents metal to metal contact with surrounding objects. Cementex is not susceptible to peeling and cracking as is the case with some molded insulations.

Example of Order Nomenclature: "APLC-12 CEMENTEX LOCK."

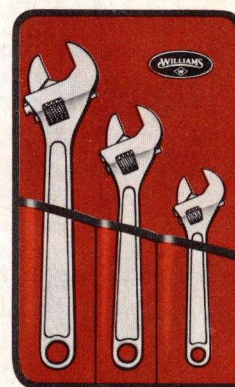
Parts set consists of one each Knurl, Pin and Retainer Ring.

No.	Size Inch	Capacity	Thickness Head		Wgt. Each Lbs.	Replacement Parts	
			Jaw Tip	Extreme		Jaw No.	Set No.
APLC-6	6	3/4	7/32	3/8	.27	AP-6-1	APL-6-3
APLC-8	8	1	17/64	1/2	.52	AP-8-1	APL-8-3
APLC-10	10	1-1/8	23/64	19/32	.90	AP-10-1	APL-10-3
APLC-12	12	1-5/16	15/32	23/32	1.6	AP-12-1	APL-12-3

LOCKAJUST SET

SET No. WS-4R
3 Wrenches
in K-6 Roll Kit
Weight, 1.7 lbs.

A handy set of three Lockajust wrenches with capacities up to 1 1/8" for general purpose applications.



Example of Order Nomenclature: "WS-4R SET IN ROLL"

One Ea.	Description	One Ea.	Description
APL-6	6" Lockajust Wrench	APL-10	10" Lockajust Wrench
APL-8	8" Lockajust Wrench		

LOCKAJUST PARTS ASSORTMENTS



No. APA-92BL
Industrial Finish
No. APA-92L
Chrome-Plated
Weight, 2.6 lbs.

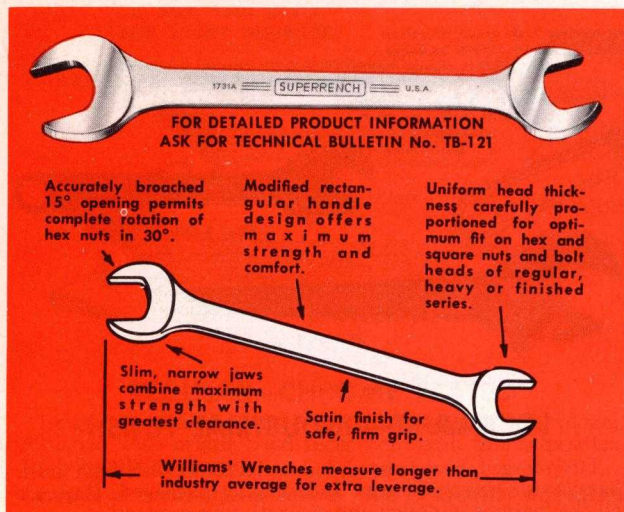
Box contains 92 parts. Repair instructions are included in each kit.

Size	Jaws	Knurls	Pins	Retainer Rings
6"	6	6	6	12
8"	6	6	6	12
10"	4	4	4	8
12"	2	2	2	6

OPEN END WRENCHES

SELECTED ALLOY STEEL

DOUBLE HEAD—15° ANGLE



The Selected Alloy Steel from which these Superrench® wrenches are drop-forged assures ample strength for the severest service. Finish is chrome-plate over nickel with faces polished bright.

Example or Order Nomenclature: "1731 WRENCH"

FEDERAL SPEC:
GGG-W-636E, TYPE IV
ENGINEERS' WRENCH, DOUBLE HEAD, OPEN END, 15°

No.	Nominal Openings	Small Head		Large Head		Overall Length	Wgt. Each, Lbs.
		Width	Thick.	Width	Thick.		
1020	1/4 & 5/16	1/2	5/32	39/64	5/32	3-13/16	.03
1720	5/16 & 11/32	39/64	3/16	23/32	3/16	4- 1/4	.05
1721	5/16 & 3/8	39/64	3/16	23/32	3/16	4- 1/4	.05
1021	5/16 & 13/32	39/64	13/64	25/32	13/64	4- 1/2	.06
1723	3/8 & 7/16	47/64	13/64	53/64	13/64	4-11/16	.07
1023	13/32 & 1/2	25/32	7/32	15/16	7/32	4- 7/8	.08
1723A	3/8 & 1/2	25/32	7/32	15/16	7/32	4- 7/8	.08
1725	7/16 & 1/2	53/64	7/32	15/16	7/32	5- 1/8	.10
1725A	7/16 & 9/16	53/64	15/64	1- 1/16	15/64	5- 5/8	.12
1725B	1/2 & 9/16	15/16	1/4	1- 1/8	1/4	6- 1/4	.15
1025	1/2 & 19/32	15/16	1/4	1- 1/8	1/4	6- 1/4	.16
1727	9/16 & 5/8	1- 1/16	17/64	1-11/64	17/64	6- 7/8	.20
1027C	9/16 & 11/16	1- 1/16	9/32	1-19/64	9/32	7- 1/8	.23
1027	19/32 & 11/16	1-11/64	9/32	1-19/64	9/32	7- 1/2	.26
1027B	5/8 & 11/16	1-11/64	9/32	1-19/64	9/32	7- 1/2	.26
1028	19/32 & 25/32	1-11/64	19/64	1-15/32	19/64	8- 1/4	.32
1028S	5/8 & 25/32	1-11/64	19/64	1-15/32	19/64	8- 1/4	.32
1729	5/8 & 3/4	1-11/64	19/64	1-15/32	19/64	8- 1/4	.32
1029B	11/16 & 3/4	1-19/64	5/16	1-17/32	5/16	9	.38
1029	11/16 & 25/32	1-19/64	5/16	1-17/32	5/16	9	.38
1029C	11/16 & 13/16	1-19/64	5/16	1-17/32	5/16	9	.37
1030	11/16 & 7/8	1-19/64	21/64	1-41/64	21/64	9- 3/8	.45
1731	3/4 & 13/16	1-17/32	11/32	1-41/64	11/32	9- 3/4	.54
1731A	3/4 & 7/8	1-17/32	11/32	1-41/64	11/32	9- 3/4	.54
1031B	25/32 & 13/16	1-17/32	11/32	1-41/64	11/32	9- 3/4	.54
1031	25/32 & 7/8	1-17/32	11/32	1-41/64	11/32	9- 3/4	.53
1731B	13/16 & 7/8	1-17/32	11/32	1-41/64	11/32	9- 3/4	.53
1032B	13/16 & 15/16	1-41/64	3/8	1- 3/4	3/8	10- 1/2	.71
1033A	7/8 & 15/16	1-41/64	3/8	1- 3/4	3/8	10- 1/2	.69
1733	7/8 & 1	1- 3/4	13/32	2	13/32	11- 3/8	.92
1033C	15/16 & 1	1- 3/4	13/32	2	13/32	11- 3/8	.91
1034	7/8 & 1-1/16	1- 3/4	13/32	2	13/32	11- 3/8	.90
1034A	15/16 & 1-1/16	1- 3/4	13/32	2	13/32	11- 3/8	.90
1035	31/32 & 1-1/16	1- 3/4	13/32	2	13/32	11- 3/8	.92
1735	1 & 1-1/8	2	7/16	2- 7/64	7/16	12- 1/4	1.1
1036B	1-1/16 & 1-1/8	2	7/16	2- 7/64	7/16	12- 1/4	1.2
1037	1-1/16 & 1-1/4	2- 7/64	15/32	2-29/64	15/32	13- 1/4	1.4
1737	1-1/8 & 1-1/4	2- 7/64	15/32	2-29/64	15/32	13- 1/4	1.4
1037A	1-1/8 & 1-5/16	2- 7/64	15/32	2-29/64	15/32	13- 1/4	1.4
1039B	1-1/4 & 1-5/16	2-11/32	1/2	2-11/16	1/2	14- 3/8	1.9
1039	1-1/4 & 1-7/16	2-11/32	1/2	2-11/16	1/2	14- 3/8	1.8
1039A	1-5/16 & 1-1/2	2-37/64	17/32	2-13/16	17/32	15- 1/2	2.3
1039C	1-3/8 & 1-7/16	2-37/64	17/32	2-13/16	17/32	15- 1/2	2.3
1040	1-1/4 & 1-5/8	2-11/32	35/64	3- 3/64	35/64	16- 1/8	2.5
1041	1-7/16 & 1-5/8	2-13/16	9/16	3- 3/64	9/16	16- 5/8	2.7
1041B	1-1/2 & 1-5/8	2-13/16	9/16	3- 3/64	9/16	16- 5/8	2.7

See Page 129 for ANSI Square and Hexagon Bolts and Nuts, as related to nominal wrench openings.

OPEN END SUPERRENCH® SETS

SELECTED ALLOY STEEL

DOUBLE HEAD—15° ANGLE



SET No. WS-1005AR

6 Wrenches

in K-10 Roll Kit

SET No. WS-1005AT

6 Wrenches Only

Weight, 4.3 lbs.

Example of Order Nomenclature: "WS-1005AR SET IN ROLL"

No.	Nominal Openings	No.	Nominal Openings
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CONTENTS-SETS Nos. WS-1005AR and WS-1005AT

This set fits all new American Standard Regular and Finished Series nuts and bolts and hex head Cap Screws 1/4 thru 3/4" and Heavy Series nuts and bolts 1/4 thru 5/8".

1725	7/16 & 1/2	1731A	3/4 & 7/8
1727	9/16 & 5/8	1033C	15/16 & 1
1029C	11/16 & 13/16	1036B	1- 1/16 & 1-1/8

SET No. WS-1025BR

6 Wrenches

in K-10 Roll Kit

SET No. WS-1025BT

6 Wrenches Only

Weight, 2.8 lbs.



Example of Order Nomenclature: "WS-1025BR SET IN ROLL"

No.	Nominal Openings	No.	Nominal Openings
-----	------------------	-----	------------------

CONTENTS-SETS Nos. WS-1025BR and WS-1025BT

This set fits all new American Standard Regular, Heavy and Finished Series nuts and bolts and hex head Cap Screws 1/4 thru 5/8".

1723	3/8 & 7/16	1029C	11/16 & 13/16
1725B	1/2 & 9/16	1733	7/8 & 1
1729	5/8 & 3/4	1034A	15/16 & 1-1/16

SET No. WS-1712BR

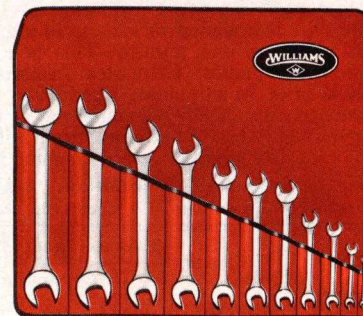
11 Wrenches

in K-19 Roll Kit

SET No. WS-1712BT

11 Wrenches Only

Weight, 10.8 lbs.



Example of Order Nomenclature: "WS-1712BR SET IN ROLL"

No.	Nominal Openings	No.	Nominal Openings
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CONTENTS-SETS Nos. WS-1712BR and WS-1712BT

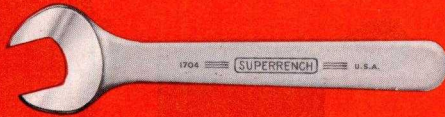
This set fits all new and old American Standard Regular and Finished Series nuts and bolts and hex head Cap Screws 1/4 thru 1" and Heavy Series nuts and bolts 1/4 thru 1".

1020	1/4 & 5/16	1733	7/8 & 1
1720	5/16 & 11/32	1034A	15/16 & 1- 1/16
1723	3/8 & 7/16	1036B	1-1/16 & 1- 1/8
1725B	1/2 & 9/16	1039A	1-5/16 & 1- 1/2
1729	5/8 & 3/4	1041	1-7/16 & 1- 5/8
1029C	11/16 & 13/16		

OPEN END WRENCHES

SELECTED ALLOY STEEL

SINGLE HEAD—15° ANGLE



Drop-forged, heat-treated, chrome-plated, faces polished.

Example of Order Nomenclature: "1702 WRENCH"

FEDERAL SPEC:

GGG-W-636E, TYPE V, ENGINEERS' WR., SINGLE HEAD, OPEN END, 15°

No.	Nominal Opening	Head		Overall Length	Weight Each, Lbs.
		Width	Thickness		
1000	5/16	25/32	3/16	3-5/8	.07
1700	3/8	15/16	7/32	4-1/8	.09
1701	7/16	1- 5/32	1/4	4-3/4	.13
1001	1/2	1- 5/32	1/4	4-3/4	.13
1702	9/16	1-11/32	9/32	5-5/8	.22
1703	5/8	1-17/32	5/16	6-1/2	.33
1003	11/16	1-17/32	5/16	6-1/2	.33
1704	3/4	1-13/16	11/32	7-3/8	.48
1705	13/16	2	13/32	8-3/8	.65
1005	7/8	2	13/32	8-3/8	.65
1006	15/16	2- 1/4	15/32	9-1/2	.92
1706	1	2- 1/4	15/32	9-1/2	.92
1007	1- 1/16	2- 9/16	17/32	10-3/4	1.5
1707	1- 1/8	2- 9/16	17/32	10-3/4	1.5
1008	1- 1/4	2-15/16	5/8	12-1/4	2.2
1008A	1- 5/16	2-15/16	5/8	12-1/4	2.2
1009	1- 7/16	3- 3/8	11/16	13-7/8	2.8
1709	1- 1/2	3- 3/8	11/16	13-7/8	2.8
1010	1- 5/8	3-21/32	3/4	15-1/2	3.9
1010A	1-11/16	3-21/32	3/4	15-1/2	3.9
1011	1-13/16	4- 1/16	27/32	17-1/8	4.8
1011A	1- 7/8	4- 1/16	27/32	17-1/8	4.8
1012	2	4- 1/2	29/32	18-7/8	6.2
1012A	2- 1/16	4- 1/2	29/32	18-7/8	6.2
1013	2- 3/16	4-15/16	31/32	20-3/4	8.
1013A	2- 1/4	4-15/16	31/32	20-3/4	8.
1014	2- 3/8	5- 5/16	1- 1/32	22-3/4	10.
1014A	2- 7/16	5- 5/16	1- 1/32	22-3/4	10.

WILLIAMS

ELECTRONIC WRENCHES

SELECTED ALLOY STEEL

15° and 60° ANGLE OPENINGS

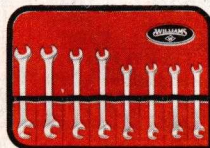
DIFFERENT OPENINGS
IN EACH HEAD

Drop-forged, heat-treated, chrome-plated, faces polished.

Example of Order Nomenclature: "OEE-1416 WRENCH"

FEDERAL SPEC: GGG-W-636E, TYPE VI, IGNITION WR., DOUBLE HEAD, OPEN END, 15° & 60° HEADS

No.	Nominal Openings		Either Head		Overall Length	Wgt. Ea., Lbs.
	15° Head	60° Head	Width	Thick.		
OEE-1315	13/64	15/64	1/2	3/32	3	.01
OEE-1513	15/64	13/64	1/2	3/32	3	.01
OEE-1416	7/32	1/4	1/2	3/32	3	.01
OEE-1614	1/4	7/32	1/2	3/32	3	.01
OEE-1820	9/32	5/16	37/64	1/8	3-3/4	.02
OEE-2018	5/16	9/32	37/64	1/8	3-3/4	.02
OEE-2224	11/32	3/8	47/64	1/8	3-3/4	.03
OEE-2422	3/8	11/32	47/64	1/8	3-3/4	.03

Set No. WS-1148R
8 Wrenches Listed Above
In K-21 Roll KitSet No. WS-1148T
8 Wrenches Listed Above
Only
Weight, .21 lbs.

ELECTRONIC WRENCHES

15° ANGLE OPENINGS

DIFFERENT OPENINGS
IN EACH HEAD

Electronic Superrench® wrenches are unusually thin and slim, but surprisingly tough and strong. Drop-forged, heat-treated, chrome-plated over nickel, faces polished.

Example of Order Nomenclature:

"1108 WRENCH" or "WS-1149R SET IN ROLL"

No.	Nominal Openings	Small Head		Large Head		Overall Length	Wgt. Ea., Lbs.
		Width	Thick.	Width	Thick.		
1106	13/64 & 7/32	1/2	3/32	1/2	3/32	3	.01
1107	15/64 & 1/4	1/2	3/32	1/2	3/32	3	.01
1108	9/32 & 11/32	5/8	1/8	47/64	1/8	3-1/2	.03
1108A	1/4 & 5/16	5/8	1/8	47/64	1/8	3-1/2	.03
1109	5/16 & 3/8	5/8	1/8	47/64	1/8	3-1/2	.03

SET No. WS-1149R
5 Wrenches Listed Above
In K-2 Roll KitSET No. WS-1149T
5 Wrenches Listed Above
Only
Weight, .13 lb.SET No. WS-1149PR
5 Wrenches Listed Above
1 PL-1519 Pliers in K-3 Roll KitSET No. WS-1149PT
5 Wrenches Listed Above
1 PL-1519 Pliers Only
Weight, .25 lb.

WILLIAMS

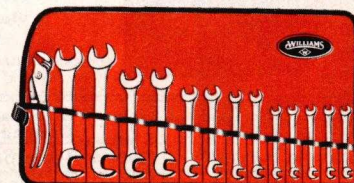
ELECTRONIC WRENCHES

SELECTED ALLOY STEEL

15° and 75° ANGLE OPENINGS

SAME OPENINGS
IN EACH HEAD

No.	Nominal Openings	Either Head		Overall Length	Weight Ea., Lbs.
		Width	Thickness		
1112	3/16 & 3/16	1/2	3/32	3	.01
1113	13/64 & 13/64	1/2	3/32	3	.01
1114	7/32 & 7/32	1/2	3/32	3	.01
1115	15/64 & 15/64	1/2	3/32	3	.01
1116	1/4 & 1/4	1/2	3/32	3	.01
1118	9/32 & 9/32	37/64	1/8	3-3/4	.02
1120	5/16 & 5/16	37/64	1/8	3-3/4	.02
1122	11/32 & 11/32	47/64	1/8	3-3/4	.03
1124	3/8 & 3/8	47/64	1/8	3-3/4	.03
1128	7/16 & 7/16	63/64	5/32	4-1/2	.06
1132	1/2 & 1/2	63/64	5/32	4-1/2	.06
1136	9/16 & 9/16	1-5/32	3/16	5-1/2	.11
1140	5/8 & 5/8	1-5/32	3/16	5-1/2	.11

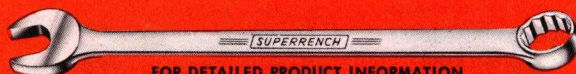
SET No. WS-1142PR
13 Wrenches Listed Above
1 PL-1519 Pliers
In K-11 Roll KitSET No. WS-1142PT
13 Wrenches Listed Above
Only
Weight, .78 lb.

See Page 129 for ANSI Square and Hexagon Bolts and Nuts, as related to nominal wrench openings.

BOX OPEN END WRENCHES

SELECTED ALLOY STEEL

LONG SERIES — 15° ANGLE — 12 PT. BOX



FOR DETAILED PRODUCT INFORMATION
ASK FOR TECHNICAL BULLETIN No. TB-121

Drop-forged from tough Selected Alloy Steel, heat-treated and chrome-plated over nickel with faces of open ends and box ends polished. Box end, with 12-point opening, is offset from plane of handle, same size opening in both heads.

Example of Order Nomenclature: "1166A WRENCH"

FEDERAL SPEC:
GGG-W-636E, TYPE III, COMBINATION, OPEN END AND 15° OFFSET
BOX OPENING

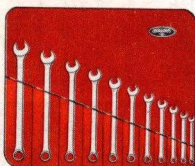
No.	Nominal Openings	Open End		Box End		Overall Length	Wgt. Each, Lbs.
		Width	Thick.	Diam.	Thick.		
1158	1/4 & 1/4	35/64	5/32	13/32	3/16	5	.04
1159	5/16 & 5/16	11/16	3/16	17/32	7/32	5- 1/2	.06
1159A	11/32 & 11/32	11/16	3/16	17/32	7/32	5- 1/2	.06
1160	3/8 & 3/8	51/64	13/64	37/64	1/4	6	.08
1161	7/16 & 7/16	29/32	7/32	21/32	5/16	6- 5/8	.13
1162	1/2 & 1/2	1- 1/32	1/4	47/64	21/64	7- 3/16	.16
1163	9/16 & 9/16	1- 5/32	9/32	53/64	11/32	7-15/16	.21
1163A	19/32 & 19/32	1- 9/32	19/64	59/64	3/8	8- 3/4	.29
1164	5/8 & 5/8	1- 9/32	19/64	59/64	3/8	8- 3/4	.29
1165	11/16 & 11/16	1-13/32	5/16	1- 1/64	13/32	9- 5/8	.35
1166	3/4 & 3/4	1-17/32	11/32	1- 3/32	7/16	10- 5/8	.46
1166A	25/32 & 25/32	1- 5/8	23/64	1-11/64	15/32	11- 9/16	.58
1167A	13/16 & 13/16	1- 5/8	23/64	1-11/64	15/32	11- 9/16	.58
1167	7/8 & 7/8	1- 3/4	3/8	1- 1/4	1/2	12-11/16	.69
1168	15/16 & 15/16	1-55/64	25/64	1-21/64	9/16	13- 7/8	.85
1170	1 & 1	1-31/32	13/32	1-27/64	5/8	15- 1/8	1.
1171	1-1/16 & 1-1/16	2- 3/32	27/64	1- 1/2	43/64	16- 1/4	1.3
1172	1-1/8 & 1-1/8	2- 7/32	7/16	1- 9/16	21/32	17- 7/16	1.5
1173	1-1/4 & 1-1/4	2-15/32	15/32	1-25/32	3/4	18-11/16	1.9
1174	1-5/16 & 1-5/16	2-19/32	1/2	1-27/32	25/32	20	2.2
1176A	1-3/8 & 1-3/8	2-61/64	9/16	2- 3/32	27/32	21- 5/16	3.3
1176	1-7/16 & 1-7/16	2-61/64	9/16	2- 3/32	27/32	21- 5/16	3.1
1178	1-1/2 & 1-1/2	2-61/64	9/16	2- 3/32	27/32	21- 5/16	3.
1180	1-5/8 & 1-5/8	3-13/64	5/8	2- 5/16	29/32	22- 3/4	3.9
1182	1-11/16 & 1-11/16	3-13/64	5/8	2- 5/16	29/32	22- 3/4	3.8
1184	1-3/4 & 1-3/4	3-15/16	3/4	2- 7/8	1-1/16	26	6.9
1186	1-13/16 & 1-13/16	3-15/16	3/4	2- 7/8	1-1/16	26	6.7
1188	1-7/8 & 1-7/8	3-15/16	3/4	2- 7/8	1-1/16	26	6.6
1190	2 & 2	3-15/16	3/4	2- 7/8	1-1/16	26	6.4
1191	2-1/16 & 2-1/16	3-15/16	3/4	2- 7/8	1-1/16	26	6.2
1192	2-1/8 & 2-1/8	4-13/32	27/32	3- 1/8	1-1/8	28	10.
1193	2-3/16 & 2-3/16	4-13/32	27/32	3- 1/8	1-1/8	28	9.8
1194	2-1/4 & 2-1/4	4-13/32	27/32	3- 1/8	1-1/8	28	9.6

LONG SERIES — 15° ANGLE — HEX BOX



Example of Order Nomenclature: "XOE-618 WRENCH"

No.	Nominal Openings	Open End		Box End		Overall Length	Wgt. Each, Lbs.
		Width	Thick.	Diam.	Thick.		
XOE-610	5/16 & 5/16	11/16	3/16	17/32	7/32	5- 1/2	.06
XOE-612	3/8 & 3/8	51/64	13/64	37/64	1/4	6	.08
XOE-614	7/16 & 7/16	29/32	7/32	21/32	5/16	6- 5/8	.13
XOE-616	1/2 & 1/2	1- 1/32	1/4	47/64	21/64	7- 3/16	.16
XOE-618	9/16 & 9/16	1- 5/32	9/32	53/64	11/32	7-15/16	.21
XOE-620	5/8 & 5/8	1- 9/32	19/64	59/64	3/8	8- 3/4	.29
XOE-622	11/16 & 11/16	1-13/32	5/16	1-1/64	13/32	9- 5/8	.35
XOE-624	3/4 & 3/4	1-17/32	11/32	1- 3/32	7/16	10- 5/8	.46



SET No. WS-1176R
11 Wrenches in K-19 Roll Kit

SET No. WS-1176T
11 Wrenches Only
Weight, 5.7 lbs.

No.	Nominal Openings	No.	Nominal Openings	No.	Nominal Openings
1161	5/16" x 5/16"	1165	1 1/16" x 1 1/16"	1168	1 5/16" x 1 5/16"
1162	3/8" x 3/8"	1166	3/4" x 3/4"	1170	1" x 1"
1163	9/16" x 9/16"	1167A	1 1/16" x 1 1/16"	1171	1 1/16" x 1 1/16"
1164	5/8" x 5/8"	1167	7/8" x 7/8"	.....	.....

BOX OPEN END SUPERRENCH® SETS

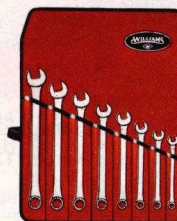
SELECTED ALLOY STEEL

LONG SERIES — 15° ANGLE



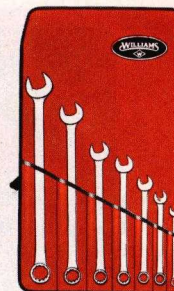
SET No. WS-1173SR
7 Wrenches
in K-7 Roll Kit

SET No. WS-1173ST
7 Wrenches Only
Weight, 1.6 lbs.



SET No. WS-1170AR
8 Wrenches
in K-15 Roll Kit

SET No. WS-1170AT
8 Wrenches Only
Weight, 3.5 lbs.



SET No. WS-1171AR
7 Wrenches
in K-14 Roll Kit

SET No. WS-1171AT
7 Wrenches Only
Weight, 6.2 lbs.

No.	Nominal Openings	No.	Nominal Openings	No.	Nominal Openings
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SETS Nos. WS-1173SR and WS-1173ST

This set fits most new and old American Standard Regular and Finished Series nuts and bolts and hex head Cap Screws 1/4 thru 5/16".

1159	5/16" x 5/16"	1161	7/16" x 7/16"	1164	5/8" x 5/8"
1159A	1 1/32" x 1 1/32"	1162	1/2" x 1/2"	.....	.....
1160	3/8" x 3/8"	1163	9/16" x 9/16"	.....	.....

SETS Nos. WS-1170AR and WS-1170AT

This set fits all new American Standard Regular and Finished Series nuts and bolts and hex head Cap Screws 1/4 thru 5/16" and Heavy Series nuts and bolts 1/4 thru 1/2".

1161	7/16" x 7/16"	1164	5/8" x 5/8"	1167A	1 3/16" x 1 3/16"
1162	1/2" x 1/2"	1165	1 1/16" x 1 1/16"	1167	7/8" x 7/8"
1163	9/16" x 9/16"	1166	3/4" x 3/4"	.....	.....

SETS Nos. WS-1171AR and WS-1171AT

This set fits all new and old American Standard Heavy Series nuts and bolts 1/4 thru 3/4" except 1/2".

1162	1/2" x 1/2"	1166	3/4" x 3/4"	1173	1 1/4" x 1 1/4"
1163	9/16" x 9/16"	1167	7/8" x 7/8"	.....	.....
1165	1 1/16" x 1 1/16"	1171	1 1/16" x 1 1/16"	.....	.....



SET No. WS-1172AR
17 Wrenches in K-20 Roll Kit

SET No. WS-1172AT
17 Wrenches Only
Weight, 11.9 lbs.



SET No. WS-1R
8 Wrenches
in K-15 Roll Kit
SET No. WS-1T
8 Wrenches Only
Weight, 3.5 lbs.

No.	Nominal Openings	No.	Nominal Openings	No.	Nominal Openings
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SETS Nos. WS-1172AR and WS-1172AT

This set fits all new and old American Standard Regular, Heavy and Finished Series nuts and bolts and hex head Cap Screws 1/4 thru 3/4".

1158	1/4" x 1/4"	1163	9/16" x 9/16"	1168	1 5/16" x 1 5/16"
1159	5/16" x 5/16"	1164	3/8" x 3/8"	1170	1" x 1"
1159A	1 1/32" x 1 1/32"	1165	1 1/16" x 1 1/16"	1171	1 1/16" x 1 1/16"
1160	3/8" x 3/8"	1166	3/4" x 3/4"	1172	1 1/8" x 1 1/8"
1161	7/16" x 7/16"	1167A	1 1/16" x 1 1/16"	1173	1 1/4" x 1 1/4"
1162	1/2" x 1/2"	1167	7/8" x 7/8"	.....	.....

SETS Nos. WS-1R and WS-1T

This set fits most new American Standard Regular and Finished Series nuts and bolt heads, hex head Cap Screws and hex Machine Screw or Stove Bolt nuts 1/4 thru 1/2".

XOE-610	5/16" x 5/16"	XOE-616	1/2" x 1/2"	XOE-622	1 1/16" x 1 1/16"
XOE-612	3/8" x 3/8"	XOE-618	3/4" x 3/4"	XOE-624	3/4" x 3/4"
XOE-614	7/16" x 7/16"	XOE-620	5/8" x 5/8"	.....	.....

See Page 129 for ANSI Square and Hexagon Bolts and Nuts, as related to nominal wrench openings.

BOX/OPEN END WRENCHES

SELECTED ALLOY STEEL

ELECTRONIC SERIES—15° ANGLE



These Electronic Superrenches are unusually thin and slim. Forged, heat-treated and chrome plated.

XOEE-604 thru 611 have 6-point box ends. XOEE-1212 thru 1224 have 12-point box ends.

Example of Order Nomenclature: "XOEE-606 WRENCH"

No.	Nominal Openings	Open End		Box End		Overall Length	Weight Ea. Lbs.
		Width	Thick.	Diam.	Thick.		
XOEE-604	1/8 & 1/4	5/16	7/64	9/32	1/8	3	.01
XOEE-605	5/32 & 5/16	5/16	7/64	9/32	1/8	3	.01
XOEE-606	3/16 & 3/8	27/64	7/64	23/64	1/8	3-1/16	.02
XOEE-607	7/32 & 7/16	27/64	7/64	23/64	1/8	3-1/16	.02
XOEE-608	1/4 & 1/2	7/8	1/8	25/64	9/64	3-1/8	.02
XOEE-609	9/32 & 9/16	35/64	1/8	7/16	9/64	3-5/8	.04
XOEE-610	5/16 & 5/8	9/16	5/8	15/32	5/32	3-11/16	.04
XOEE-611	11/32 & 11/16	43/64	9/16	17/32	5/32	4	.05
XOEE-1212	3/8 & 3/4	47/64	3/16	35/64	15/64	4-3/8	.08
XOEE-1214	7/16 & 7/8	13/16	3/8	13/16	5/8	4-11/16	.11
XOEE-1216	1/2 & 1/2	15/16	7/32	45/64	5/16	5-1/16	.16
XOEE-1218	9/16 & 9/16	1-3/64	15/64	13/16	21/64	5-1/2	.22
XOEE-1220	5/8 & 5/8	1-5/32	17/64	57/64	11/32	5-15/16	.28
XOEE-1222	11/16 & 11/16	1-9/32	9/32	31/32	3/8	6-7/16	.38
XOEE-1224	3/4 & 3/4	1-25/64	19/64	1-1/16	13/32	6-7/8	.51

SET No. WS-2R
9 Wrenches in K-25 Roll Kit

SET No. WS-2T
9 Wrenches Only
Weight, .40 lbs.



No.	Nominal Openings	No.	Nominal Openings	No.	Nominal Openings
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CONTENTS-SETS Nos. WS-2R and WS-2T

This set of nine combination Superrenches is ideal for electronic and business machine applications.

XOEE-604	1/8 & 1/4	XOEE-607	7/32 & 7/16	XOEE-610	5/16 & 5/8
XOEE-605	5/32 & 5/16	XOEE-608	1/4 & 1/2	XOEE-611	11/32 & 11/16
XOEE-606	3/16 & 3/8	XOEE-609	9/32 & 9/16	XOEE-1212	3/8 & 3/4

SET No. WS-50R
4 Wrenches in K-5 Roll Kit

SET No. WS-50T
4 Wrenches Only
Weight, .94 lbs.



No.	Nominal Openings	No.	Nominal Openings	No.	Nominal Openings
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CONTENTS-SETS Nos. WS-50R and WS-50T

This set of four combination Superrenches is well adapted for use in limited quarters on most smaller nuts and bolts 1/4 thru 7/16" diameters.

XOEE-1214	7/16" x 7/16"	XOEE-1218	9/16" x 9/16"	.....	.....
XOEE-1216	1/2" x 1/2"	XOEE-1220	5/8" x 5/8"	.....	.....

SET No. WS-51R
8 Wrenches in K-12 Roll Kit

SET No. WS-51T
8 Wrenches Only
Weight, 2.1 lbs.



No.	Nominal Openings	No.	Nominal Openings	No.	Nominal Openings
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CONTENTS-SETS Nos. WS-51R and WS-51T

This set of eight combination Superrenches can be used on most regular and finished series nuts and bolts and hex head cap screws 1/4 thru 1/2" dia. heavy series 1/4 thru 3/8" dia. and set screws 5/16 thru 3/4" dia.

XOEE-610	5/16" x 5/16"	XOEE-1216	1/2" x 1/2"	XOEE-1222	11/16" x 11/16"
XOEE-1212	3/8" x 3/8"	XOEE-1218	9/16" x 9/16"	XOEE-1224	3/4" x 3/4"
XOEE-1214	7/16" x 7/16"	XOEE-1220	5/8" x 5/8"	.....	.....

See Page 129 for ANSI Square and Hexagon Bolts and Nuts, as related to nominal wrench openings.

FLARE NUT WRENCHES

SELECTED ALLOY STEEL

SPLIT BOX/OPEN END COMBINATION



Open box end, has a 6-point opening offset 15° from plane of handle with a tube opening slot at 22-1/2° to the axis of the handle. Open end is thin, with slim jaws and opening at angle of 15°.

Example of Order Nomenclature: "1320 WRENCH"

No.	Open End		Open-Box End			Overall Length	Weight Each, Lbs.
	Nominal Opening	Thickness Head	Nominal Opening	Outside Diam.	Max. Tube Clearance		
1312	3/8	3/16	3/8	21/32	5/16	1/4	5-5/8 .07
1314	7/16	13/64	7/16	25/32	11/32	9/32	6 .10
1316	1/2	7/32	1/2	29/32	7/16	3/8	6-3/8 .15
1318	9/16	15/64	9/16	31/32	7/16	7/16	6-7/8 .20
1320	5/8	1/4	5/8	1-1/64	1/2	15/32	7-5/8 .25
1322	11/16	5/16	11/16	1-9/32	9/16	9/16	8-3/4 .44
1324	3/4	5/16	3/4	1-9/32	9/16	9/16	8-3/4 .42
1328	7/8	11/32	7/8	1-7/16	5/8	11/16	9-1/4 .56
1332	1	3/8	1	1-19/32	11/16	3/4	9-7/8 .70
1334	1-1/16	7/16	1-1/16	1-25/32	3/4	27/32	10-3/4 1.
1336	1-1/8	7/16	1-1/8	1-25/32	3/4	27/32	10-3/4 .96

SET No. WS-13R
7 Wrenches
in K-12 Roll Kit

SET No. WS-13T
7 Wrenches Only
Weight, 1.8 lbs.

These seven wrenches will handle various fittings for tube sizes as follows: 1/8", 1/4", 3/8", 1/2", 5/8", and 3/4".



No.	Nominal Openings	No.	Nominal Openings	No.	Nominal Openings
1312	3/8 & 3/8	1318	9/16 & 9/16	1322	11/16 & 11/16
1314	7/16 & 7/16	1320	5/8 & 5/8	1324	3/4 & 3/4
1316	1/2 & 1/2	.....	.....	.....	.....

DOUBLE HEAD SPLIT BOX



†12-point opening.

Example of Order Nomenclature: "XFN-1618 WRENCH"

No.	Nominal Openings	Small End			Large End			Lgth.	Wgt. Each Lbs.
		Head Diam.	Head Thick.	Tube Clear	Head Diam.	Head Thick.	Tube Clear		
XFN-1214	3/8 & 7/16	51/64	11/32	1/4	7/8	3/8	9/32	6-1/4	.12
XFN-1618	1/2 & 9/16	31/32	3/8	3/8	11/16	7/16	7/16	7-1/2	.25
XFN-2022	5/8 & 11/16	17/64	7/16	15/32	11/64	1/2	9/16	8-1/2	.40
XFN-2432	3/4 & 1	115/64	1/2	9/16	115/32	3/4	3/4	9-3/16	.60
XFN-2836	7/8 & 1 1/8	115/32	9/16	11/16	13/4	11/16	27/32	9-7/8	.90

SET No. WS-14R
5 Wrenches
in K-10 Roll Kit

SET No. WS-14T
5 Wrenches Only
Weight, 2.1 lbs.

These five wrenches will handle various fittings for tube sizes as follows: 1/8", 1/4", 3/8", 1/2", 5/8", and 3/4".

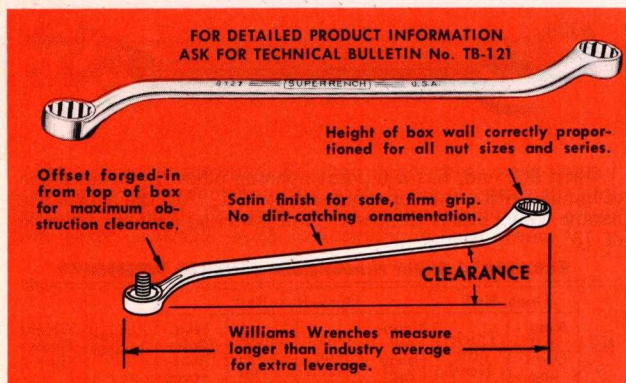


No.	Nominal Openings	No.	Nominal Openings	No.	Nominal Openings
XFN-1214	3/8 & 7/16	XFN-2022	5/8 & 11/16	XFN-2836	7/8 & 1-1/8
XFN-1618	1/2 & 9/16	XFN-2432	3/4 & 1	.....	.....

12-POINT BOX WRENCHES

SELECTED ALLOY STEEL

LONG DOUBLE OFFSET PATTERN



Drop-forged from Selected Alloy Steel, heat-treated, chrome-plated over nickel, heads polished. Nos. 8040B through 8053 have different appearance and are finished in gray industrial finish*

FEDERAL SPEC:
GGG-W-636E, TYPE 1, CLASS 2, STYLE 1,
BOX WR., DOUBLE HD., 12 POINT, DOUBLE OFFSET, REGULAR LENGTH

No.	Nominal Openings	Small Head		Large Head		Overall Length	Wgt. Each Lbs.
		Diam.	Thick.	Diam.	Thick.		
8721	5/16 & 3/8	33/64	15/64	5/8	17/64	7- 1/2	.13
8723	3/8 & 7/16	37/64	1/4	21/32	9/32	7- 3/4	.13
8023	13/32 & 1/2	21/32	19/64	47/64	21/64	8- 1/16	.19
8725	7/16 & 1/2	21/32	19/64	47/64	21/64	8- 1/16	.21
8725A	7/16 & 9/16	21/32	5/16	53/64	21/64	8- 3/8	.23
8725B	1/2 & 9/16	47/64	21/64	53/64	11/32	8-11/16	.25
8025	1/2 & 19/32	47/64	21/64	7/8	23/64	9- 1/16	.23
8727	9/16 & 5/8	53/64	11/32	29/32	3/8	9- 3/8	.27
8027	19/32 & 11/16	29/32	3/8	1	13/32	9- 3/4	.35
8727A	5/8 & 11/16	29/32	3/8	1	13/32	9- 3/4	.35
8729	5/8 & 3/4	29/32	13/32	1- 5/64	7/16	10- 1/8	.42
8029B	11/16 & 3/4	1	13/32	1- 5/64	7/16	10- 1/2	.44
8029	11/16 & 25/32	1	27/64	1- 1/8	29/64	10- 7/8	.50
8729A	3/4 & 25/32	1- 5/64	31/64	1-11/64	33/64	11- 5/8	.56
8030	11/16 & 7/8	1	7/16	1- 1/4	15/32	11- 1/4	.56
8731	3/4 & 13/16	1- 5/64	31/64	1-11/64	33/64	11- 5/8	.58
8731A	3/4 & 7/8	1- 5/64	15/32	1- 1/4	1/2	12	.58
8031B	25/32 & 13/16	1- 1/8	31/64	1-11/64	33/64	12- 1/2	.65
8031	25/32 & 7/8	1-11/64	1/2	1- 1/4	17/32	12- 7/8	.75
8731B	13/16 & 7/8	1-11/64	1/2	1- 1/4	17/32	12- 7/8	.71
8033A	7/8 & 15/16	1- 1/4	17/32	1-21/64	9/16	13- 7/8	1.
8733	7/8 & 1	1- 1/4	9/16	1-13/32	19/32	13- 7/8	1.
8033C	15/16 & 1	1-21/64	37/64	1-13/32	5/8	14- 3/8	.98
8034	7/8 & 1- 1/16	1- 1/4	19/32	1- 1/2	41/64	15	1.1
8034A	15/16 & 1- 1/16	1-21/64	39/64	1- 1/2	21/32	15- 1/2	1.2
8735	1 & 1- 1/8	1-13/32	41/64	1- 9/16	43/64	16	1.3
8735A	1- 1/16 & 1- 1/8	1- 1/2	43/64	1- 9/16	23/32	16- 5/8	1.4
8037	1- 1/16 & 1- 1/4	1- 1/2	11/16	1-25/32	3/4	17- 1/4	1.8
8037A	1- 1/8 & 1- 5/16	1- 9/16	23/32	1-27/32	25/32	18	2.8
8039B	1- 1/4 & 1- 5/16	1-25/32	47/64	1-27/32	51/64	18- 3/4	2.8
8039	1- 1/4 & 1- 7/16	1-25/32	3/4	2- 3/64	13/16	19- 1/2	2.7
8039A	1- 5/16 & 1- 1/2	1-27/32	25/32	2- 3/32	27/32	20- 1/2	2.6
*8040B	1- 7/16 & 1- 1/2	2-11/32	1	2-11/32	1	21	6.3
*8041	1- 7/16 & 1- 5/8	2-11/32	1	2-19/32	1-1/16	23	5.7
*7422B	1- 1/2 & 1-11/16	2-11/32	1	2-19/32	1-1/16	23	5.8
*8045	1-13/16 & 2	2-57/64	1-1/8	3- 9/64	1-1/4	25	8.5
*8049	2- 3/16 & 2- 3/8	3-29/64	1-3/8	3-45/64	1-1/2	27	10.2
*8053	2- 9/16 & 2- 3/4	3-29/32	1-5/8	4- 5/32	1-3/4	30	14.7

SHORT DOUBLE OFFSET PATTERN



FEDERAL SPEC:
GGG-W-636E, TYPE 1, CLASS 2, STYLE 2,
BOX WRENCH, DOUBLE HEAD, 12 POINT, DOUBLE OFFSET

No.	Nominal Openings	Small Head		Large Head		Overall Length	Wgt. Each Lbs.
		Diam.	Thick.	Diam.	Thick.		
9723	3/8 & 7/16	35/64	1/4	5/8	9/32	4-1/2	.07
9725	7/16 & 1/2	5/8	19/64	45/64	21/64	5	.11
9725B	1/2 & 9/16	45/64	21/64	13/16	11/32	5-1/2	.22
9727	9/16 & 5/8	13/16	11/32	29/32	3/8	6	.19
9729	5/8 & 3/4	29/32	13/32	1-5/64	7/16	6-1/4	.23
9029C	11/16 & 13/16	31/32	7/16	1-7/64	1/2	6-1/2	.27

See Page 129 for ANSI Square and Hexagon Bolts and Nuts, as related to nominal wrench openings.

HEX BOX WRENCHES

SELECTED ALLOY STEEL

LONG DOUBLE OFFSET PATTERN



Drop-forged from Selected Alloy Steel, heat-treated chrome-plated over nickel, heads polished.

Example of Order Nomenclature: "XX-61618 WRENCH"

No.	Nominal Openings	Small Head		Large Head		Overall Length	Wgt. Each Lbs.
		Diam.	Thick.	Diam.	Thick.		
XX-61214	3/8 & 7/16	37/64	1/4	21/32	9/32	7- 3/4	.13
XX-61618	1/2 & 9/16	47/64	21/64	53/64	11/32	8-11/16	.23
XX-62024	5/8 & 3/4	29/32	13/32	1-5/64	7/16	10- 1/8	.42

WILLIAMS

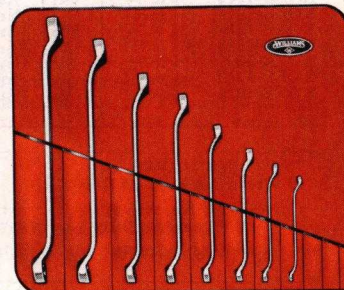
OFFSET BOX SUPERRENCH® SETS

SELECTED ALLOY STEEL

LONG DOUBLE OFFSET



SET No. WS-8006AR
6 Wrenches
in K-13 Roll Kit



SET No. WS-8008R
8 Wrenches
in K-19 Roll Kit

SET No. WS-8006AT
6 Wrenches Only
Weight, 3.4 lbs.

SET No. WS-8008T
8 Wrenches Only
Weight, 7.5 lbs.

No.	Nominal Openings	No.	Nominal Openings	No.	Nominal Openings
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SETS Nos. WS-8006AR and WS-8006AT

This set fits regular, heavy and finished series nuts and bolts and hex cap screws 1/4 thru 5/8".

8723	3/8"x1 1/16"	8727A	5/8"x1 1/16"	8733	7/8"x1"
8725B	1/2"x9/16"	8731	3/4"x1 1/16"	8034A	1 1/16"x1 1/16"

SET No. WS-8008R and WS-8008T

Here is additional coverage with openings up to 1-7/16" with this set.

8723	3/8"x1 1/16"	8731	3/4"x1 1/16"	8037A	1 1/8"x1 1/16"
8725B	1/2"x9/16"	8733	7/8"x1"	8039	1 1/4"x1 1/16"
8727A	5/8"x1 1/16"	8034A	1 1/16"x1 1/16"	.....	.....

SHORT DOUBLE OFFSET

SET No. WS-9704R
4 Wrenches
in K-5 Roll Kit



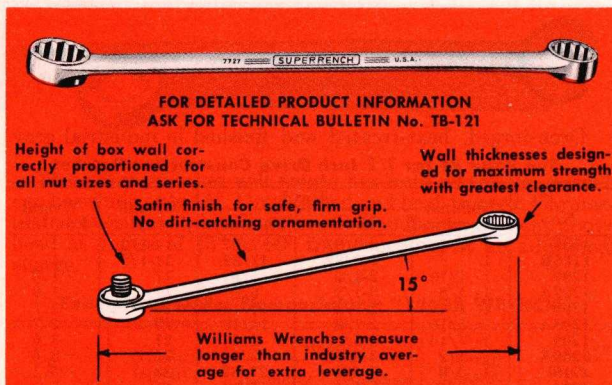
SET No. WS-9704T
4 Wrenches Only
Weight, .98 lbs.

A compact set of short series double offset box wrenches with openings from 3/8" thru 1 1/16" without duplication.

No.	Nominal Openings	No.	Nominal Openings
9723	3/8"x1 1/16"	9729	5/8"x3/4"
9725B	1/2"x9/16"	9029C	1 1/16"x1 1/16"

12-POINT BOX WRENCHES

SELECTED ALLOY STEEL
LONG 15° ANGLE OFFSET PATTERN



Drop-forged from Selected Alloy Steel, heat-treated, chrome-plated over nickel, heads polished.

Example of Order Nomenclature: "7029 WRENCH"

FEDERAL SPEC:
GGG-W-636E, TYPE I, CLASS 1, STYLE 1,
BOX WRENCH, DOUBLE HEAD, 12 POINT, 15°, REGULAR LENGTH

No.	Nominal Openings	Small Head		Large Head		Overall Length	Wgt. Each, Lbs.
		Diam.	Thick.	Diam.	Thick.		
7723	3/8 & 7/16	37/64	1/4	21/32	9/32	7- 3/4	.11
7023	13/32 & 1/2	21/32	19/64	47/64	21/64	8- 1/16	.17
7725	7/16 & 1/2	21/32	19/64	47/64	21/64	8- 1/16	.17
7725A	7/16 & 9/16	21/32	5/16	53/64	11/32	8- 3/8	.21
7725B	1/2 & 9/16	47/64	21/64	53/64	11/32	8-11/16	.21
7025	1/2 & 19/32	47/64	21/64	7/8	23/64	9- 1/16	.19
7727	9/16 & 5/8	53/64	11/32	29/32	3/8	9- 3/8	.25
7027	19/32 & 11/16	29/32	3/8	1	13/32	9- 3/4	.29
7727A	5/8 & 11/16	29/32	3/8	1	13/32	9- 3/4	.29
7729	5/8 & 3/4	29/32	13/32	1- 3/32	7/16	10- 1/8	.35
7029B	11/16 & 3/4	1	13/32	1- 3/32	7/16	10- 1/2	.50
7029	11/16 & 25/32	1	27/64	1- 1/8	29/64	10- 7/8	.50
7729A	3/4 & 25/32	1- 3/32	29/64	1- 1/8	31/64	11- 5/8	.48
7030	11/16 & 7/8	1	7/16	1- 1/4	15/32	11- 1/4	.67
7731A	3/4 & 7/8	1- 3/32	15/32	1- 1/4	1/2	12	.53
7731B	25/32 & 13/16	1- 1/8	31/64	1-11/64	33/64	12- 1/2	.56
7031	25/32 & 7/8	1-11/64	1/2	1- 1/4	17/32	12- 7/8	.65
7731B	13/16 & 7/8	1-11/64	1/2	1- 1/4	17/32	12- 7/8	.63
7033A	7/8 & 15/16	1- 1/4	17/32	1-21/64	9/16	13- 3/8	.71
7733	7/8 & 1	1- 1/4	9/16	1-13/32	19/32	13- 7/8	.88
7033C	15/16 & 1	1-21/64	37/64	1-13/32	5/8	14- 3/8	.90
7034	7/8 & 1- 1/16	1-11/32	19/32	1- 1/2	41/64	15	1.1
7034A	15/16 & 1- 1/16	1-21/64	39/64	1- 1/2	21/32	15- 1/2	1.2
7735	1 & 1- 1/8	1-13/32	5/8	1- 9/16	43/64	16	1.2
7735A	1-1/16 & 1- 1/8	1- 1/2	43/64	1- 9/16	23/32	16- 5/8	1.3
7037	1-1/16 & 1- 1/4	1- 1/2	11/16	1-25/32	3/4	17- 1/4	1.5
7037A	1-1/8 & 1- 5/16	1- 9/16	23/32	1-27/32	25/32	18	1.6
7039B	1-1/4 & 1- 5/16	1-25/32	47/64	1-27/32	51/64	18- 3/4	1.9
7039	1-1/4 & 7/16	1-25/32	3/4	2- 3/64	13/16	19- 1/2	2.2
7039A	1-5/16 & 1- 1/2	1-27/32	25/32	2- 3/32	27/32	20- 1/2	2.3
7040B	1-7/16 & 1- 1/2	2- 3/64	13/16	2- 3/32	7/8	21- 1/2	4.7
7041	1-7/16 & 1- 5/8	2- 3/64	27/32	2- 5/16	1	22- 1/2	4.7
7742B	1-1/2 & 1-11/16	2- 3/32	15/16	2-19/32	1-1/16	22- 3/4	4.4

SHORT 15° ANGLE OFFSET PATTERN



FEDERAL SPEC:
GGG-W-636E, TYPE I, CLASS 1, STYLE 2, BOX WRENCH,
DOUBLE HEAD, 12 POINT, 15°, SHORT LENGTH

No.	Nominal Openings	Small Head		Large Head		Overall Length	Wgt. Each, Lbs.
		Diam.	Thick.	Diam.	Thick.		
6723	3/8 & 7/16	19/32	19/64	11/16	5/16	4-1/2	.08
6725	7/16 & 1/2	43/64	5/16	3/4	21/64	5-1/2	.11
6725A	7/16 & 9/16	23/32	23/64	13/16	3/8	5-1/2	.14
6725B	1/2 & 9/16	23/32	23/64	13/16	3/8	5-1/2	.14
6025	1/2 & 19/32	23/32	23/64	13/16	3/8	5-1/2	.14
6727	9/16 & 5/8	13/16	13/32	29/32	7/16	6	.18

See Page 129 for ANSI Square and Hexagon Bolts and Nuts, as related to nominal wrench openings.

FLEX/OPEN END WRENCHES

SELECTED ALLOY STEEL



Drop-forged from Selected Alloy Steel, heat-treated, chrome-plated over nickel, socket and open end faces polished. 12-point opening socket member swivels 180°.

No.	Nominal Openings	Open End		Socket End		Overall Length	Wgt. Ea., Lbs.
		Width	Thick.	Nose	Depth		
FOE-10	5/16 & 5/16	11/16	3/16	15/32	11/64	5- 7/8	.16
FOE-12	3/8 & 3/8	51/64	13/64	9/16	11/64	6- 3/8	.17
FOE-14	7/16 & 7/16	29/32	7/32	5/8	1/4	7- 1/4	.22
FOE-16	1/2 & 1/2	1- 1/32	1/4	3/4	17/64	7-13/16	.28
FOE-18	9/16 & 9/16	1- 5/32	9/32	25/32	3/8	8- 3/4	.38
FOE-20	5/8 & 5/8	1- 9/32	19/64	7/8	3/8	9- 9/16	.44
FOE-22	11/16 & 11/16	1-13/32	5/16	1-	3/8	10- 9/16	.60
FOE-24	3/4 & 3/4	1-17/32	11/32	1- 3/64	7/16	11- 9/16	.62

SET No. WS-60R

8 Wrenches Listed Above
In K-15 Roll Kit

SET No. WS-60T

8 Wrenches Only
Weight, 3.2 lbs.



Here's coverage from 5/16" thru 3/4" in a versatile wrench style which is gaining favor in industrial maintenance applications.

12-POINT BOX SUPERRENCH® SET

SELECTED ALLOY STEEL

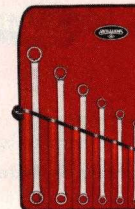
LONG 15° ANGLE OFFSET PATTERN

SET No. WS-7006BR

6 Wrenches
in K-9 Roll Kit

SET No. WS-7006BT

6 Wrenches Only
Weight, 3.1 lbs.



CONTENTS SETS Nos. WS-7006BR and WS-7006BT

No.	Nominal Openings	No.	Nominal Openings
7725	7/16 & 1/2	7731B	25/32 & 13/16
7727	9/16 & 5/8	7033C	15/16 & 1
7029	11/16 & 25/32	7735A	1-1/16 & 1-1/8

ELECTRONIC HEX BOX WRENCHES

SELECTED ALLOY STEEL



Ideal for electronic, carburetor and ignition work. Heat-treated, chrome-plated over nickel, heads polished.

No.	Nominal Openings	Small Head		Large Head		Overall Length	Wgt., Each, Lbs.
		Diam.	Thick.	Diam.	Thick.		
1150	3/16 & 13/64	19/64	1/8	5/16	9/64	2-7/8	.02
1151	7/32 & 15/64	21/64	5/32	23/64	11/64	3-1/8	.03
1152	1/4 & 9/32	3/8	11/64	13/32	3/16	3-3/8	.04
1153	5/16 & 11/32	29/64	7/32	1/2	1/4	3-3/4	.06



TAPPET WRENCHES

SELECTED ALLOY STEEL

SINGLE HEAD—15° ANGLE—EXTRA LONG



Drop-forged, heat-treated and chrome-plated.

Example of Order Nomenclature: "A-100A WRENCH"

FEDERAL SPEC:

GGG-W-636E, TYPE X, CL. 2, TAP. WR., SINGLE SPEAR HD., OPEN END, 15°

No.	Nominal Opening	Head		Overall Length	Weight Ea., Lbs.
		Width	Thickness		
A100C	3/8	1-21/64	3/16	15	.32
A100	7/16	1-21/64	3/16	15	.32
A100A	1/2	1-21/64	3/16	15	.32
A100B	9/16	1-21/64	3/16	15	.32
A101	5/8	1-29/64	3/16	15	.36

DOUBLE HEAD—15° ANGLE



FEDERAL SPEC:

GGG-W-636E, TYPE X, CLASS 1, TAP. WR., DBLE. SPEAR HD., OPEN END, 15°

No.	Nominal Openings Tappet Sizes	Small Head		Large Head		Overall Length	Wt. Ea., Lbs.
		Width	Thick.	Width	Thick.		
1090A	3/8 & 7/16	1- 1/4	5/32	1- 5/16	5/32	8	.19
1090	7/16 & 1/2	1- 1/4	5/32	1- 5/16	5/32	8	.19
1090G	7/16 & 17/32	1- 1/4	5/32	1- 5/16	5/32	8	.19
1090D	1/2 & 9/16	1- 1/4	5/32	1- 5/16	5/32	8	.19
1092	9/16 & 5/8	1-21/64	3/16	1- 1/2	3/16	8	.22
1092F	5/8 & 11/16	1-21/64	3/16	1- 1/2	3/16	8	.22
1094G	3/4 & 13/16	1-19/32	7/32	1- 3/4	7/32	9	.34
1094	3/4 & 7/8	1-19/32	7/32	1- 3/4	7/32	9	.34
1096H	7/8 & 1-1/16	1-27/32	7/32	1-15/16	7/32	9	.41
1096	15/16 & 1	1-27/32	7/32	1-15/16	7/32	9	.41

WILLIAMS

RATCHETING BOX WRENCHES



Made from selected steel. All critical parts are heat-treated for lasting service and safety. Chrome-plated over nickel.

Example of Order Nomenclature: "RB-1618 WRENCH"

FEDERAL SPEC: GGG-W-001405-1, WRENCH, BOX, RATCHETING

No.	Nominal Openings	Small Head		Large Head		Overall Length	Wgt. Each Lbs.
		Diam.	Thick.	Diam.	Thick.		
RB-810	1/4 & 5/16 6 Pt.	19/32	3/8	5/8	3/8	4-1/4	.13
RB-1214	3/8 & 7/16 6 Pt.	23/32	3/8	7/8	3/8	5-1/2	.19
RB-1618	1/2 & 9/16 6 Pt.	1	1/2	1-1/8	1/2	6-3/4	.42
RB-1820	9/16 & 5/8 12 Pt.	1- 5/16	1/2	1-3/8	1/2	8	.67
RB-2022	5/8 & 11/16 12 Pt.	1- 9/32	1/2	1-7/16	1/2	8	.67
RB-2024	5/8 & 3/4 12 Pt.	1- 9/32	1/2	1-7/16	1/2	8	.67
RB-2428	3/4 & 7/8 12 Pt.	1-13/32	1/2	1-9/16	1/2	9-1/4	.75

SET No. WS-12R

6 Wrenches
in K-10 Roll Kit

SET No. WS-12T

6 Wrenches Only
Weight, 2.9 lbs.

Here's a popular assortment ideally suited to industrial applications.

No.	Nom. Opngs.	No.	Nom. Opngs.	No.	Nom. Opngs.
RB-810	1/4 & 5/16	RB-1618	1/2 & 9/16	RB-2024	5/8 & 3/4
RB-1214	3/8 & 7/16	RB-2022	5/8 & 11/16	RB-2428	3/4 & 7/8

See Page 129 for ANSI Square and Hexagon Bolts and Nuts, as related to nominal wrench openings.

CONSTRUCTION WRENCHES

SELECTED ALLOY STEEL

15° ANGLE



Drop-forged, heat-treated and finished in industrial gray.

See Page 84 for 1/2 Inch Drive Construction Ratchet

No.	Nominal Opening	Head		Overall Length	Weight Ea., Lbs.
		Width	Thickness		
1205	7/8	2-3/32	17/32	14-1/2	1.
1206B	1	2-3/32	17/32	14-1/2	1.
1207	1- 1/16	2-1/2	5/8	17	1.8
1207A	1- 1/8	2-1/2	5/8	17	1.8
1208	1- 1/4	2-7/8	11/16	19	2.7
1208A	1- 5/16	2-7/8	11/16	19	2.7
1209	1- 7/16	3-5/16	3/4	21	3.6
1209A	1- 1/2	3-5/16	3/4	21	3.6
1210	1- 5/8	3-5/8	27/32	23	5.1
1211	1-13/16	4-1/4	15/16	25	7.
1212	2	4-1/4	15/16	25	7.

STRUCTURAL WRENCHES

SELECTED ALLOY STEEL



Drop-Forged, heat-treated and finished in industrial gray.

FEDERAL SPEC:

GGG-W-636E, TYPE IX, CL. 1, STRUC. WR., SNGL., OPEN END, OFFSET HDLE.

No.	Nominal Opening	Head		Handle Offset		Overall Length	Weight Each, Lbs.
		Width	Thick.	At Head	At End		
1901	1/2	1- 9/16	13/32	1- 1/16	2- 1/16	9-1/2	.43
1901B	9/16	1- 9/16	13/32	1- 1/16	2- 1/16	9-1/2	.43
1903A	5/8	1- 9/16	13/32	1- 1/16	2- 1/16	9-1/2	.43
1903	11/16	1- 9/16	13/32	1- 1/16	2- 1/16	9-1/2	.43
1904A	3/4	2	7/16	1- 1/16	2- 1/4	11-1/2	1.2
1905A	13/16	2	7/16	1- 1/16	2- 1/4	11-1/2	1.2
1905	7/8	2	7/16	1- 1/16	2- 1/4	11-1/2	1.2
1906	15/16	2- 9/32	7/16	1- 1/16	2- 3/8	13	1.1
1906B	1	2- 9/32	7/16	1- 1/16	2- 3/8	13	1.1
1907	1- 1/16	2- 9/32	7/16	1- 1/16	2- 3/8	13	1.1
1907A	1- 1/8	2- 1/2	9/16	1- 1/16	2-13/16	16	1.8
1908	1- 1/4	2- 1/2	9/16	1- 1/16	2-13/16	16	1.8
1908A	1- 5/16	3- 1/16	11/16	1- 1/16	3- 1/8	18	2.9
1909	1- 7/16	3- 1/16	11/16	1- 1/16	3- 1/8	18	2.9
1909A	1- 1/2	3-17/32	11/16	1- 1/16	3- 1/8	20	4.0
1910	1- 5/8	3-17/32	11/16	1- 1/16	3- 3/8	20	3.9
1910A	1-11/16	4	3/4	1- 1/16	3- 5/8	22	5.9
1911	1-13/16	4	3/4	1- 1/16	3- 5/8	22	5.8
1911A	1- 7/8	4- 3/8	3/4	1- 1/16	3-13/16	24	7.0
1912	2	4- 3/8	3/4	1- 1/16	3-13/16	24	6.8

STRUCTURAL BOX WRENCHES

SELECTED ALLOY STEEL



Drop-forged, heat-treated, and finished in industrial gray.

FEDERAL SPEC: GGG-W-636E, TYPE IX, CLASS 2, STRUCTURAL WRENCH, BOX END, OFFSET HANDLE

No.	Nominal Opening	Head		Handle Offset		Overall Length	Weight Each, Lbs.
		Diam.	Thick.	At Head	At End		
8905A	13/16	1-11/32	5/8	1- 1/8	1-25/32	12	1.2
8905	7/8	1-11/32	5/8	1- 1/8	1-25/32	12	1.2
8906	15/16	1- 1/2	3/4	1- 1/4	1-61/64	12	1.4
8906B	1	1- 1/2	3/4	1- 1/4	1-61/64	12	1.4
8907	1- 1/16	1-11/16	13/16	1- 5/16	2- 9/64	15	2.1
8907A	1- 1/8	1-11/16	13/16	1- 5/16	2- 9/64	15	2.1
8908	1- 1/4	2- 1/16	7/8	1- 7/16	2-21/64	17	2.5
8908A	1- 5/16	2- 1/16	7/8	1- 7/16	2-21/64	17	2.5
8909	1- 7/16	2- 1/4	1	1- 1/2	2- 3/4	21	3.8
8909A	1- 1/2	2- 1/4	1	1- 1/2	2- 3/4	21	3.8
8910	1- 5/8	2- 9/16	1-1/16	1- 5/8	2- 7/8	22	4.6
8910A	1-11/16	2- 9/16	1-1/16	1- 5/8	2- 7/8	22	4.6
8911	1-13/16	2-13/16	1-1/8	1-11/16	3	23	5.8
8911A	1- 7/8	2-13/16	1-1/8	1-11/16	3	23	5.8
8912	2	3- 1/8	1-1/4	1-13/16	3- 5/32	24-1/2	6.5
8913	2- 3/16	3-15/32	1-3/8	2	3- 1/2	26	8.4
8914	2- 3/8	3-23/32	1-1/2	2- 1/8	3-11/16	28	9.5
8915	2- 9/16	3-29/32	1-5/8	2- 1/4	3-13/16	30	10.6
8916	2- 3/4	4- 5/32	1-3/4	2- 3/8	3-29/32	30	12.1

12-POINT BOX WRENCHES

SELECTED ALLOY STEEL
REGULAR PATTERN

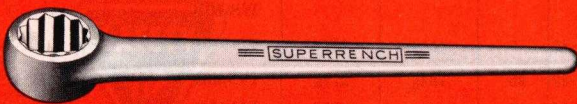
These Superrenches will rotate hex nuts where the wrench can be swung only 15°. Drop-forged and heat-treated. Chrome-plated over nickel, heads polished. Handle can be bent above head at angles of 45° to 90° from opening, at an additional charge.

Example of Order Nomenclature: "1805A WRENCH"

No.	Nominal Opening	Head		Overall Length	Weight Each, Lbs.
		Diameter	Thickness		
1800A	7/16	45/64	7/32	3-1/2	.07
1801	1/2	27/32	17/64	4	.11
1802A	9/16	61/64	5/16	4-7/8	.19
1803A	5/8	1- 3/32	23/64	5-7/8	.31
1803	11/16	1- 3/32	23/64	5-7/8	.31
1804A	3/4	1- 1/4	13/32	6-7/8	.36
1805A	13/16	1-23/64	29/64	7-3/4	.45
1805	7/8	1-23/64	29/64	7-3/4	.45
1806	15/16	1-35/64	1/2	8-3/4	.68
1806B	1	1-35/64	1/2	8-3/4	.68
1807	1- 1/16	1-25/32	9/16	9-7/8	.89
1807A	1- 1/8	1-25/32	9/16	9-7/8	.89
1808	1- 1/4	2- 1/16	9/16	11-1/2	1.5
1808A	1- 5/16	2- 1/16	9/16	11-1/2	1.5
1809	1- 7/16	2- 3/8	21/32	13-3/8	1.9
1809A	1- 1/2	2- 3/8	21/32	13-3/8	1.9
1810	1- 5/8	2- 5/8	3/4	15-1/4	2.9
1810A	1-11/16	2- 5/8	3/4	15-1/4	2.9
1811	1-13/16	2-29/32	13/16	17	3.1
1811A	1- 7/8	2-29/32	13/16	17	3.1
1812	2	3- 1/4	15/16	19	4.3

WILLIAMS

12-POINT BOX WRENCHES

SELECTED ALLOY STEEL
HEAVY PATTERN

These Superrenches will rotate hex nuts where the wrench can be swung only 15°. Drop-forged and heat-treated. Chrome-plated over nickel, heads polished. Handle can be bent above head at angles of 45° to 90° from opening, at an additional charge.

Example of Order Nomenclature: "H-1810A WRENCH"

No.	Nominal Opening	Head		Overall Length	Weight Each, Lbs.
		Diameter	Thickness		
H-1808	1- 1/4	2- 1/16	13/16	11-1/2	1.6
H-1808A	1- 5/16	2- 1/16	13/16	11-1/2	1.6
H-1809	1- 7/16	2- 3/8	15/16	13-3/8	2.3
H-1809A	1- 1/2	2- 3/8	15/16	13-3/8	2.3
H-1810	1- 5/8	2- 5/8	1-1/8	15-1/4	3.1
H-1810A	1-11/16	2- 5/8	1-1/8	15-1/4	3.1
H-1811	1-13/16	2-15/16	1-1/4	17	3.8
H-1811A	1- 7/8	2-15/16	1-1/4	17	3.8
H-1812	2	3- 1/4	1-3/8	19	5.4
H-1813	2- 3/16	3- 1/2	1-1/2	21	6.5
H-1813A	2- 1/4	3- 1/2	1-1/2	21	6.5
H-1814	2- 3/8	3- 3/4	1-5/8	23	7.8
H-1815	2- 9/16	4- 1/8	1-3/4	25	10.3
H-1815A	2- 5/8	4- 1/8	1-3/4	25	10.3
H-1816	2- 3/4	4- 9/16	1-7/8	27	12.5
H-1817A	3	4-13/16	2	30	16.3
H-1817	3- 1/8	4-13/16	2	30	16.3

See Page 129 for ANSI Square and Hexagon Bolts and Nuts, as related to nominal wrench openings.

STRIKING FACE BOX WRENCHES

SELECTED ALLOY STEEL
OFFSET PATTERN—12-POINT OPENINGS

For heavy work where large nuts must be set up tight or frozen nuts loosened. Offset head gives ample nut clearance. Drop-forged and heat-treated to withstand the necessary shocks. Finished in industrial gray.

FEDERAL SPEC:
GGG-W-636E, TYPE XII, STRIKING WRENCH, 12 POINT BOX

No.	Nominal Opening	Head		Overall Length	Weight Each, Lbs.
		Diameter	Thickness		
8807	1- 1/16	1-11/16	13/16	10	2.1
8807A	1- 1/8	1-11/16	13/16	10	2.1
8808	1- 1/4	2- 1/16	7/8	11	2.5
8808A	1- 5/16	2- 1/16	7/8	11	2.5
8809	1- 7/16	2- 1/4	1	11-1/2	3.5
8809A	1- 1/2	2- 1/4	1	11-1/2	3.5
8810	1- 5/8	2- 9/16	1-1/16	12	4.5
8810A	1-11/16	2- 9/16	1-1/16	12	4.5
8811B	1- 3/4	2-13/16	1-1/8	12-1/2	5.8
8811	1-13/16	2-13/16	1-1/8	12-1/2	5.8
8811A	1- 7/8	2-13/16	1-1/8	12-1/2	5.6
8812A	1-15/16	3- 1/8	1-1/4	13-1/2	6.8
8812	2	3- 1/8	1-1/4	13-1/2	6.5
8813B	2- 1/8	3-15/32	1-3/8	14-3/8	8.8
8813	2- 3/16	3-15/32	1-3/8	14-3/8	8.8
8813A	2- 1/4	3-15/32	1-3/8	14-3/8	8.8
8814A	2- 5/16	3-23/32	1-1/2	14	9.7
8814	2- 3/8	3-23/32	1-1/2	14	9.5
8815B	2- 1/2	3-29/32	1-5/8	14-1/2	10.6
8815	2- 9/16	3-29/32	1-5/8	14-1/2	10.4
8815A	2- 5/8	3-29/32	1-5/8	14-1/2	10.4
8816	2- 3/4	4- 5/32	1-3/4	15	11.5
8816C	2- 7/8	4-21/32	1-7/8	16	15.3
8816B	2-15/16	4-21/32	1-7/8	16	15.3
8817A	3	4-15/16	2	16-1/2	18.4
8817	3- 1/8	4-15/16	2	16-1/2	17.8

STRIKING FACE BOX WRENCHES

STRAIGHT PATTERN—12-POINT OPENINGS

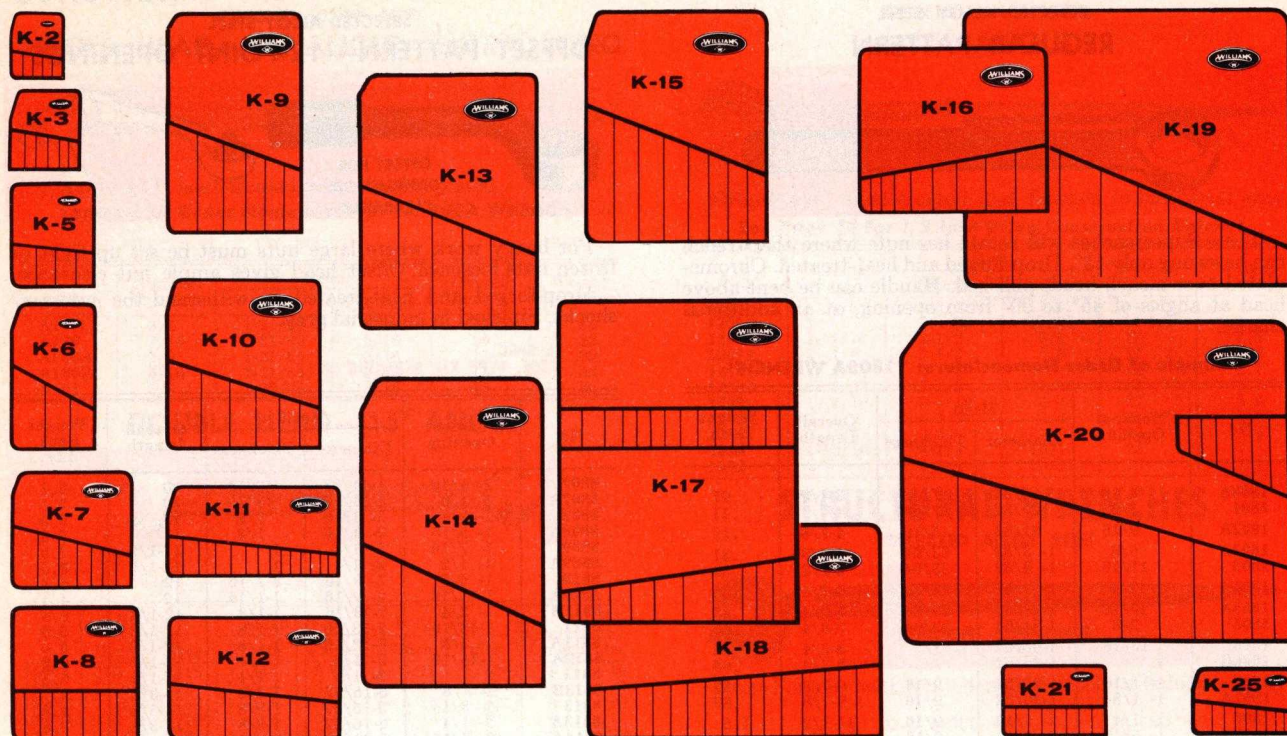


Heads are approximately as thick as the nuts they handle. Drop-forged and heat-treated. Finished in industrial gray.

FEDERAL SPEC:
GGG-W-636E, TYPE XI, STYLE 1, SLUGGING WR., SHORT L'GTH, 12 PT. BOX
GGG-W-636E, TYPE XI, STYLE 2, SLUGGING WR., LONG L'GTH, 12 PT. BOX

No.	Nominal Opening	Head		Overall Length	Weight Each, Lbs.
		Diameter	Thickness		
SFH-1808	1- 1/4	2- 3/16	13/16	7	1.4
SFH-1808A	1- 5/16	2- 3/16	13/16	7	1.4
SFH-1809	1- 7/16	2- 5/16	1	8-1/4	2.1
SFH-1809A	1- 1/2	2- 5/16	1	8-1/4	2.1
SFH-1810	1- 5/8	2- 5/8	1- 1/8	9	3
SFH-1810A	1-11/16	2- 5/8	1- 1/8	9	3
SFH-1811	1-13/16	2-15/16	1- 1/4	10	3.9
SFH-1811A	1- 7/8	2-15/16	1- 1/4	10	3.9
SFH-1812	2	3- 1/2	1- 3/8	11	5.5
SFH-1813	2- 3/16	3- 1/2	1- 3/8	11	5.5
SFH-1813A	2- 1/4	3- 1/2	1- 3/8	11	5.5
SFH-1814	2- 3/8	4- 1/8	1- 5/8	13	9.1
SFH-1815	2- 9/16	4- 1/8	1- 5/8	13	9.1
SFH-1815A	2- 5/8	4- 1/8	1- 5/8	13	9.1
SFH-1816	2- 3/4	4- 3/4	1- 7/8	15-1/2	14.6
SFH-1817A	3	4- 3/4	1- 7/8	15-1/2	14.6
SFH-1817	3- 1/8	4- 3/4	1- 7/8	15-1/2	14.6
SFH-1818A	3- 3/8	5- 1/4	2	17-1/4	18.9
SFH-1818	3- 1/2	5- 1/4	2	17-1/4	18.9
SFH-1819B	3- 3/4	5- 7/8	2- 1/4	18	23.1
SFH-1819	3- 7/8	5- 7/8	2- 1/4	18	23.1
SFH-1819C	4- 1/8	6- 3/8	2- 7/16	19	27.7
SFH-1819A	4- 1/4	6- 3/8	2- 7/16	19	27.7
SFH-1820B	4- 1/2	7	2- 3/4	20	34.1
SFH-1820	4- 5/8	7	2- 3/4	20	34.1

VINYL COATED LEATHERETTE ROLL KITS



The tough, flexible material used in Williams roll kits is made up of a spun rayon cloth which is coated both sides and through the material with a special vinyl coating that is highly

grease and oil resistant. All pockets and trim are stitched for greatest strength. Pockets will not tear as do some heat-sealed kits. Cloth ties provided on all kits.

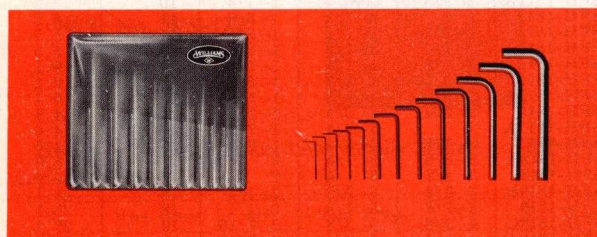
Example of Order Nomenclature: "K-17 KIT ONLY"

No.	No. Pockets	Dimensions		Used for Sets Nos.
		Width	Height	
K-2	5	4 $\frac{5}{8}$	6	WS-1149R
K-3	6	5 $\frac{3}{4}$	7	WS-1149PR
K-5	4	7 $\frac{1}{2}$	9 $\frac{1}{2}$	CCS-4R, CDS-4R, CRS-4R, PS-4R, WS-50R, WS-9704R
K-6	3	7 $\frac{1}{4}$	12	WS-4R
K-7	7	10 $\frac{1}{8}$	12 $\frac{7}{8}$	WS-1173SR
K-8	8	11	13 $\frac{3}{8}$	CS-8R, PC-8R
K-9	6	11 $\frac{1}{4}$	18 $\frac{7}{8}$	WS-7006BR
K-10	6	12 $\frac{3}{4}$	16	MSEW-6R, PLS-6R, WS-12R, WS-14R, WS-25BR, WS-1005AR, WS-1025BR
K-11	14	14 $\frac{3}{8}$	7 $\frac{1}{2}$	WS-1142PR
K-12	8	14 $\frac{1}{4}$	10 $\frac{1}{8}$	MSCWS-8R, WS-13R, WS-51R

No.	No. Pockets	Dimensions		Used for Sets Nos.
		Width	Height	
K-13	6	14 $\frac{1}{2}$	19	MSBW-6R, WS-8006AR
K-14	7	14 $\frac{7}{8}$	25 $\frac{1}{2}$	WS-1171AR
K-15	8	15	17 $\frac{1}{2}$	MSCW-8R, MSEW-8R, MSRB-7R, WS-1R, WS-1170AR, WS-60R
K-16	9	15 $\frac{3}{8}$	13 $\frac{3}{8}$	CS-9R
K-17	26	19 $\frac{5}{8}$	27 $\frac{3}{4}$	PC-26R
K-18	17	23 $\frac{1}{2}$	17 $\frac{1}{2}$	PC-17R, PS-17R
K-19	11	26 $\frac{1}{4}$	22	MSBW-11R, WS-1176R, WS-1712BR, WS-8008R
K-20	18	32	25 $\frac{7}{8}$	MSCW-18R, WS-1172AR
K-21	8	9	6	WS-1148R
K-25	9	8 $\frac{1}{2}$	6	WS-2R

WILLIAMS
HEX KEY WRENCH SET

SELECTED STEEL



SET No. WS-44A

SET No. WS-44A

13 Wrenches in Plastic Kit—Weight, .56 lb.

Hex key wrenches in this set are accurately made from selected steel, cadmium plated.

FEDERAL SPEC: GGG-W-652-4, TYPE I, CLASS A

Hex Size	Description	Hex Size	Description
.050"	Hex Wrench, 1 $\frac{3}{16}$ " long	$\frac{5}{32}$ "	Hex Wrench, 2 $\frac{1}{8}$ " long
$\frac{1}{16}$ "	Hex Wrench, 1 $\frac{13}{16}$ " long	$\frac{3}{16}$ "	Hex Wrench, 2 $\frac{3}{4}$ " long
$\frac{5}{64}$ "	Hex Wrench, 1 $\frac{7}{8}$ " long	$\frac{7}{32}$ "	Hex Wrench, 3" long
$\frac{3}{32}$ "	Hex Wrench, 2" long	$\frac{1}{4}$ "	Hex Wrench, 3 $\frac{1}{4}$ " long
$\frac{7}{64}$ "	Hex Wrench, 2 $\frac{1}{8}$ " long	$\frac{5}{16}$ "	Hex Wrench, 3 $\frac{13}{16}$ " long
$\frac{1}{8}$ "	Hex Wrench, 2 $\frac{1}{4}$ " long	$\frac{3}{8}$ "	Hex Wrench, 4 $\frac{1}{4}$ " long
$\frac{9}{64}$ "	Hex Wrench, 2 $\frac{3}{8}$ " long	.....	.....

2 ALLOY SOCKETS AND SETS

2 ALLOY SOCKETS AND SETS

For technical information about these products

Ask for Technical Bulletin TB-122 which covers design features, quality ratchet and socket manufacture and competitive comparisons of Williams Superratchets and Supersockets. TB-106B covers design and construction features of Williams Tool Chests and Roller Cabinets.



When using adapters, avoid exceeding the strength of sockets in adapting down to smaller drive sizes, or exceeding driver limits when adapting up to larger drive sizes. Never adapt more than to the next drive size.

Important

Williams Supersockets in all drive sizes are designed for hand operation and should not be used on power drive or impact wrenches.

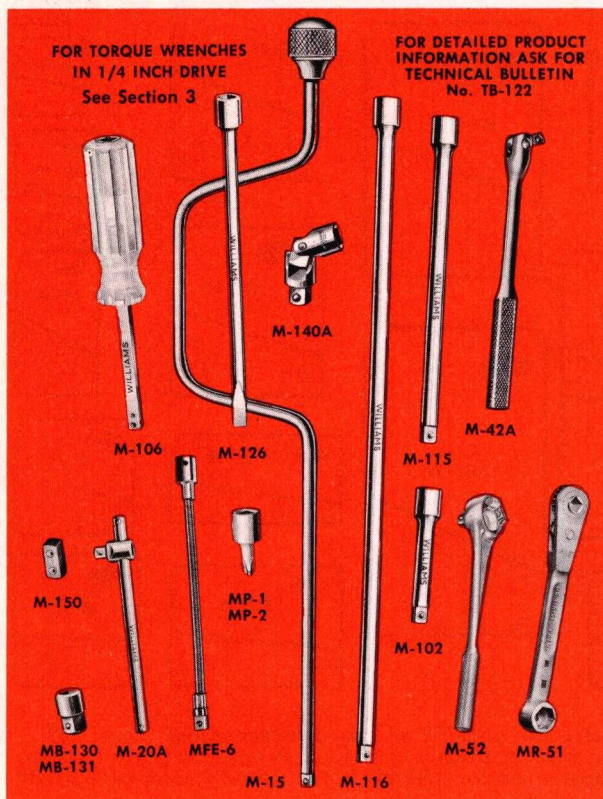
1/4"

1/4 Inch SQUARE DRIVE MIDGET SUPERSOCKET® WRENCHES

SELECTED ALLOY STEEL

FOR TORQUE WRENCHES
IN 1/4 INCH DRIVE
See Section 3

FOR DETAILED PRODUCT
INFORMATION ASK FOR
TECHNICAL BULLETIN
No. TB-122



FEDERAL SPEC: GGG-W-641E

No.	PIECE	Wgt.
M-15	Speeder—15-3/4" long; knurled revolving grip.....	.59
M-20A	Sliding T Handle—4-1/2" long.....	.10
M-42A	Flex Handle only—5-3/4" long; flexible head, knurled grip.....	.25
M-52	Reversible Ratchet—5" long. 45 teeth in Ratchet-gear. Shift-lever reverses action instantly.....	.16
MR-51	Reversible Refrigeration Ratchet—6" long. Has 1/4" female drive in head; 5/16", 1/4", and 3/16" square openings and 1/2" hex opening in handle.....	.29
M-102	Extension—2" long.....	.06
M-106	Spinner Handle has plastic grip with 1/4" square drive-opening in end—6" long.....	.19
M-115	Extension—6" long.....	.17
M-116	Extension—14" long.....	.35
M-126	Regular Screwdriver Socket Attachment—6" long ..	.09
MB-130	Adapter—1/4" sq. female and 3/8" sq. male. Adapts Handles with 1/4" sq. dr. to Sockets with 3/8" sq. dr.	.05
MB-131	Adapter—1/4" sq. female and 3/8" sq. male. Adapts Sockets with 1/4" sq. dr. to Handles with 3/8" sq. dr.	.05
M-140A	Universal Joint—Spring tension holds angle desired	.04
M-150	Plug Adapter 3/4" long; both ends 1/4" sq. male....	.02
MFE-6	Flexible Extension—6" long. Extremely useful in hard to reach spots. Strong flexible 1/4" dia. cable	.10
MP-1	Phillips Screwdriver Socket Attachment—No. 1 Phillips Drive to fit screws No. 4 and smaller.....	.02
MP-2	Phillips Screwdriver Socket Attachment—No. 2 Phillips Drive to fit screws Nos. 5 to 9 inclusive....	.03

M-42RK FLEX HANDLE REPAIR KIT

Qty.	No.	Description
1	M-42A-1	Drive Tang
1	M-42A-2	Spring
1	M-42A-3	Hinge Pin

MPA-52 RATCHET REPAIR KIT

All necessary parts for repair of M-52 ratchet. Sold individually as M-52RK or in kit of five as below, with instructions.

Qty.	No.	Description	Wgt. Ea., Lbs.
5	M-52RK	M-52RU and M-52G Gland	.09

Extruded from Alloy Steel, heat-treated and chrome-plated.

REGULAR 6-POINT SOCKETS

GGG-W-641E, TYPE II, CLASS 1, STYLE A

Opng.	No.	Nose Dia.	Dpth. Opng.	Lgth.	Wgt.
1/8	M-604	15/64	5/32	27/32	.01
5/32	M-605	17/64	3/16	27/32	.01
3/16	M-606	19/64	3/16	27/32	.01
7/32	M-607	21/64	3/16	27/32	.02
1/4	M-608	3/8	7/32	27/32	.02
9/32	M-609	13/32	7/32	27/32	.02
5/16	M-610	7/16	1/4	27/32	.02
11/32	M-611	1/2	9/32	27/32	.03
3/8	M-612	17/32	9/32	27/32	.03
7/16	M-614	39/64	5/16	27/32	.04
1/2	M-616	11/16	11/32	27/32	.05
9/16	M-618	3/4	3/8	27/32	.08

REGULAR 12-POINT SOCKETS

GGG-W-641E, TYPE II, CLASS 2, STYLE A

Opng.	No.	Nose Dia.	Dpth. Opng.	Lgth.	Wgt.
1/4	M-1208	3/8	7/32	27/32	.02
5/16	M-1210	7/16	1/4	27/32	.02
11/32	M-1211	31/64	9/32	27/32	.03
3/8	M-1212	17/32	9/32	27/32	.03
7/16	M-1214	39/64	5/16	27/32	.04
1/2	M-1216	43/64	11/32	27/32	.05
9/16	M-1218	3/4	3/8	27/32	.08

EXTRA DEEP 6-POINT SOCKETS

GGG-W-641E, TYPE II, CLASS 1, STYLE B

Opng.	No.	Nose Dia.	Dpth. Opng.	Lgth.	Wgt.
1/8	MD-604	15/64	5/32	2	.03
5/32	MD-605	17/64	3/16	2	.03
3/16	MD-606	19/64	3/16	2	.03
1/4	MD-608	23/64	7/32	2	.04
9/32	MD-609	13/32	7/32	2	.04
5/16	MD-610	29/64	1/4	2	.04
11/32	MD-611	31/64	9/32	2	.05
3/8	MD-612	17/32	9/32	2	.06
7/16	MD-614	39/64	5/16	2	.08
1/2	MD-616	43/64	11/32	2	.09
9/16	MD-618	3/4	3/8	2	.10

EXTRA DEEP 12-POINT SOCKETS

GGG-W-641E, TYPE II, CLASS 2, STYLE B

Opng.	No.	Nose Dia.	Dpth. Opng.	Lgth.	Wgt.
5/16	MD-1210	29/64	1/4	2	.04
11/32	MD-1211	31/64	9/32	2	.05
3/8	MD-1212	17/32	9/32	2	.06
7/16	MD-1214	39/64	5/16	2	.08
1/2	MD-1216	43/64	11/32	2	.09
9/16	MD-1218	3/4	3/8	2	.10

REGULAR 4 and 8-POINT SOCKETS

GGG-W-641E, TYPE II, CLASS 3

Opng.	No.	Nose Dia.	Dpth. Opng.	Lgth.	Wgt.
3/16	M-406	7/16	3/16	27/32	.03
7/32	M-407	15/32	3/16	27/32	.03
1/4	M-408	1/2	7/32	27/32	.03
5/16	M-810	9/16	1/4	27/32	.03
3/8	M-812	43/64	9/32	27/32	.05

UNIVERSAL 6-POINT SOCKETS

Opng.	No.	Nose Dia.	Dpth. Opng.	Lgth.	Wgt.
5/16	MU-610	29/64	1/4	1-1/4	.05
3/8	MU-612	17/32	9/32	1-9/32	.05
7/16	MU-614	39/64	5/16	1-11/32	.06
1/2	MU-616	43/64	11/32	1-7/16	.06

HEX BIT SOCKETS WITH SCREWDRIVER BITS

No.	Bit Size	Length	Diam.	Wgt.
MA-10-1S	3/16 x .032	2- 1/16	5/8	.09
MA-10-2S	7/32 x .040	2- 1/16	5/8	.09
MA-10-3S	9/32 x .045	2- 1/16	5/8	.09
MA-10-4S	5/16 x .055	2- 1/16	5/8	.09

WITH PHILLIP SCREW BITS

No.	Bit Size	Length	Diam.	Wgt.
MA-10-1P	No. 1	1-13/16	5/8	.09
MA-10-2P	No. 2	1-13/16	5/8	.09
MA-10-3P	No. 3	1-13/16	5/8	.09
MA-10-4P	No. 4	1-13/16	5/8	.09

HEX BIT SOCKETS WITH BITS

Bit Size	WITH SHORT BIT	WITH LONG BIT	Skt. Diam.
.050	MA-050	MA-050L	1/2
1/16	MA-2	MA-2L	1/2
5/64	MA-2 1/2	MA-2 1/2 L	1/2
3/32	MA-3	MA-3L	1/2
7/64	MA-3 1/2	MA-3 1/2 L	1/2
1/8	MA-4	MA-4L	1/2
9/64	MA-4 1/2	MA-4 1/2 L	1/2
5/32	MA-5	MA-5L	1/2
3/16	MA-6	MA-6L	9/16
7/32	MA-7	MA-7L	9/16
1/4	MA-8	MA-8L	5/8
5/16	MA-10	MA-10L	5/8

FOR INDUSTRIAL FINISH RATCHETS AND DRIVERS SEE PAGE 84.

1/4 Inch SQUARE DRIVE MIDGET SUPERSOCKET® SETS

1/4"

SELECTED ALLOY STEEL

HEXAGON BITS

SLOTTED SCREW BITS

No.	Tip Size	Lgth.	Wgt.
ASB-1	3/16 x .032	1-1/2	.03
ASB-2	7/32 x .040	1-1/2	.03
ASB-3	9/32 x .045	1-1/2	.03
ASB-4	5/16 x .055	1-1/2	.03

PHILLIPS SCREW BITS

No.	Bit Size	Lgth.	Wgt.
APB-1	No. 1	1-1/4	.03
APB-2	No. 2	1-1/4	.03
APB-3	No. 3	1-1/4	.03
APB-4	No. 4	1-1/4	.03

SHORT HEX BITS

No.	Hex	Lgth.	Wgt.
A-050	.050	1-1/16	.002
A-2	1/16	1-1/16	.002
A-2-1/2	5/64	1-1/16	.003
A-3	3/32	1-1/16	.003
A-3-1/2	7/64	1-1/16	.005
A-4	1/8	1-1/8	.006
A-4-1/2	9/64	1-1/8	.009
A-5	5/32	1-1/8	.01
A-6	3/16	1-1/8	.01
A-7	7/32	1-1/8	.01
A-8	1/4	1-1/4	.02
A-10	5/16	1-1/4	.03

LONG HEX BITS

No.	Hex	Lgth.	Wgt.
A-050L	.050	2-1/8	.004
A-2L	1/16	2-1/8	.004
A-2-1/2L	5/64	2-1/8	.006
A-3L	3/32	2-1/8	.006
A-3-1/2L	7/64	2-1/8	.01
A-4L	1/8	3	.01
A-4-1/2L	9/64	3	.02
A-5L	5/32	3	.02
A-6L	3/16	3	.03
A-7L	7/32	3	.04
A-8L	1/4	4	.06
A-10L	5/16	4	.10

HOLLOW SCREW SOCKET BITS

GGG-W-641E, TYPE IV, CLASS 3, STYLE A



Bit No.	Hex Plug Size	For Hollow Screws	Wgt.
AM-604	1/8	1/4	.03
AM-605	5/32	5/16	.03
AM-606	3/16	No. 10	.03
AM-607	7/32	1/4	.03

SET No. WSM-10R
9 6 and 12-Pt. Sockets
with RM-10 Rail and Clips

SET No. WSM-10T
Sockets Only

Weight, .52 lb.

Here's a basic socket assortment in a mix of popular 6 and 12-point sockets.

One Ea.	Description	One Ea.	Description	One Ea.	Description
M-605	5/32" 6 Pt Skt	M-1210	5/16" 12 Pt Skt	M-1214	7/16" 12 Pt Skt
M-606	3/16" 6 Pt Skt	M-1211	11/32" 12 Pt Skt	M-1216	1/2" 12 Pt Skt
M-608	1/4" 6 Pt Skt	M-1212	3/8" 12 Pt Skt	M-1218	5/8" 12 Pt Skt

SET No. WSM-10HR

9 Hex Sockets
with RM-10 Rail and Clips

SET No. WSM-10HT

Sockets Only

Weight, .55 lb.

This set covers the same range as set WSM-10R above in all 6-point sockets.

One Ea.	Description	One Ea.	Description	One Ea.	Description
M-605	5/32" 6 Pt Skt	M-610	5/16" 6 Pt Skt	M-614	7/16" 6 Pt Skt
M-606	3/16" 6 Pt Skt	M-611	11/32" 6 Pt Skt	M-616	1/2" 6 Pt Skt
M-608	1/4" 6 Pt Skt	M-612	3/8" 6 Pt Skt	M-618	5/8" 6 Pt Skt

RAILS AND CLIPS FOR 1/4" THROUGH 1/2" DRIVE SUPERSOCKET® SETS

RAIL AND CLIPS

CLIPS ONLY

RAILS ONLY

Rail and clips are handy ways to store sockets. Screw holes at either end of rail permit fastening. Clips slide along rails and sockets slip into clips at drive side. Available as follows: clips only, rails only, or rail and clips. Bright finish. Shipped unassembled.

RAILS AND CLIPS

1/4" Drive				3/8" Drive				1/2" Drive			
No.	Lgth.	No. of Clips	Wgt., Ea. Lbs.	No.	Lgth.	No. of Clips	Wgt., Ea. Lbs.	No.	Lgth.	No. of Clips	Wgt., Ea. Lbs.
RM-10	9"	10	.16	RB-5	9"	5	.18	RS-5	9"	5	.21
RM-12	17"	12	.25	RB-10	17"	10	.25	RS-10	17"	10	.28
				RB-12	17"	12	.27	RS-12	17"	12	.31

CLIPS ONLY

No. RC-25P	No. RC-37P	No. RC-50P
25-1/4" Drive Socket Clips	25-3/8" Drive Socket Clips	25-1/2" Drive Socket Clips
Weight, .10 lbs.	Weight, .15 lbs.	Weight, .30 lbs.

RAILS ONLY

R-9	One 9" long socket rail for use with 1/4" through 1/2" clips	Weight, .15 lbs.
R-17	One 17" long socket rail for use with 1/4" through 1/2" clips	Weight, .25 lbs.

SET No. WSM-11R

9 6 and 12-Pt. Deep Sockets
with RM-10 Rail and Clips

SET No. WSM-11T

Sockets Only

Weight, .75 lb.

Add this set of deep sockets in 6 and 12-point to cover basic requirements.

One Ea.	Description	One Ea.	Description	One Ea.	Description
MD-605	5/32" 6 Pt Dp	MD-1210	5/16" 12 Pt Dp	MD-1214	7/16" 12 Pt Dp
MD-606	3/16" 6 Pt Dp	MD-1211	11/32" 12 Pt Dp	MD-1216	1/2" 12 Pt Dp
MD-608	1/4" 6 Pt Dp	MD-1212	3/8" 12 Pt Dp	MD-1218	5/8" 12 Pt Dp

SET No. WSM-11HR

9 Hex Deep Sockets
with RM-10 Rail and Clips

SET No. WSM-11HT

Sockets Only

Weight, .77 lb.

Covering the same range as set WSM-11R above, this set features all 6-point sockets.

One Ea.	Description	One Ea.	Description	One Ea.	Description
MD-605	5/32" 6 Pt Dp	MD-610	5/16" 6 Pt Dp	MD-614	7/16" 6 Pt Dp
MD-606	3/16" 6 Pt Dp	MD-611	11/32" 6 Pt Dp	MD-616	1/2" 6 Pt Dp
MD-608	1/4" 6 Pt Dp	MD-612	3/8" 6 Pt Dp	MD-618	5/8" 6 Pt Dp

SET No. WSM-12HT

4 Universal Sockets

Weight, .22 lb.

This set of 6-point universal sockets gets around obstructions and tight corners that can't be tackled with regular sockets.

One Ea.	Description	One Ea.	Description
MU-610	5/16" 6 Pt Universal Socket	MU-612	7/16" 6 Pt Universal Socket
MU-614	3/8" 6 Pt Universal Socket	MU-616	1/2" 6 Pt Universal Socket

SET No. WSM-13R

12 Hex Bit Sockets
with RM-12 Rail and Clips

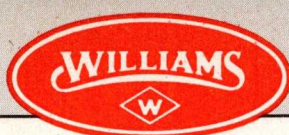
SET No. WSM-13T

Sockets Only

Weight, .72 lb.

Here's an assortment of hex bit sockets with slotted bits, Phillips bits, and hex bits that adds versatility to ratchets and flex handles.

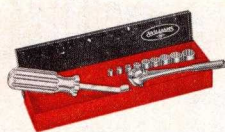
One Ea.	Description	One Ea.	Description	One Ea.	Description
MA-2	5/16" H B Skt	MA-4	1/8" H B Skt	MA-10-1P	No. 1 Phillips S. B.
MA-2-1/2	3/8" H B Skt	MA-4-1/2	5/64" H B Skt	MA-10-2P	No. 2 Phillips S. B.
MA-3	7/32" H B Skt	MA-5	3/32" H B Skt	MA-10-1S	.032 Slot S. B.
MA-3-1/2	1/4" H B Skt	MA-6	1/16" H B Skt	MA-10-2S	.040 Slot S. B.



1/4"

1/4 Inch SQUARE DRIVE MIDGET SUPERSOCKET® SETS

SELECTED ALLOY STEEL



SET No. WSM-1B

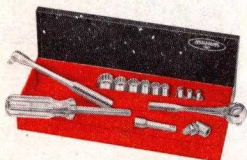
11 Tools in TB-1A Metal Tool Box
9-1/4" x 2-1/4" x 1-1/4"
Total Weight, 1.9 lbs.

SET No. WSM-1BT
Tools Only

Total Weight, .95 lb.

Make any size nut driver by attaching socket to M-106 Handle.

One Ea.	Description	One Ea.	Description	One Ea.	Description
M-605	5/32" 6 Pt. Skt	M-1211	1 1/32" 12 Pt. Skt	M-1218	9/16" 12 Pt. Skt
M-606	3/16" 6 Pt. Skt	M-1212	3/8" 12 Pt. Skt	M-52	Ratchet
M-608	1/4" 6 Pt. Skt	M-1214	7/16" 12 Pt. Skt	M-106	Spinner Hdle
M-1210	5/16" 12 Pt. Skt	M-1216	1/2" 12 Pt. Skt		



SET No. WSM-2B

14 Tools in TB-3A Metal Tool Box
9-1/2" x 3-1/2" x 1-1/4"
Total Weight, 2.3 lbs.

SET No. WSM-2BT
Tools Only

Total Weight, 1.2 lbs.

This is an extremely flexible set for its size. M-106 Handle can be used as a nut driver or extension for M-52 Ratchet.

One Ea.	Description	One Ea.	Description	One Ea.	Description
M-605	5/32" 6 Pt. Skt	M-1212	3/8" 12 Pt. Skt	M-52	Ratchet
M-606	3/16" 6 Pt. Skt	M-1214	7/16" 12 Pt. Skt	M-102	Ext.
M-608	1/4" 6 Pt. Skt	M-1216	1/2" 12 Pt. Skt	M-106	Spinner Hdle
M-1210	5/16" 12 Pt. Skt	M-1218	9/16" 12 Pt. Skt	M-140A	Universal Jt
M-1211	1 1/32" 12 Pt. Skt	M-42A	Flex Handle		



SET No. WSM-2BH

14 Tools in TB-3A Metal Tool Box
9-1/2" x 3-1/2" x 1-1/4"
Total Weight, 2.5 lbs.

SET No. WSM-2BHT
Tools Only

Total Weight, 1.4 lbs.

Basically this is an all hex socket version of set WSM-2B.

One Ea.	Description	One Ea.	Description	One Ea.	Description
M-605	5/32" 6 Pt. Skt	M-612	3/8" 6 Pt. Skt	M-52	Ratchet
M-606	3/16" 6 Pt. Skt	M-614	7/16" 6 Pt. Skt	M-102	Ext.
M-608	1/4" 6 Pt. Skt	M-616	1/2" 6 Pt. Skt	M-106	Spinner Hdle
M-610	5/16" 6 Pt. Skt	M-618	9/16" 6 Pt. Skt	M-140A	Universal Jt.
M-611	1 1/32" 6 Pt. Skt	M-42A	Flex Handle		

SET No. WSM-3C

11 Tools in TB-1B Metal Tool Box
9-1/4" x 2-1/4" x 1-1/4"
Total Weight, 2.3 lbs.

SET No. WSM-3CT
Tools Only

Total Weight, 1.2 lbs.

For nut drivers attach deep sockets to M-106 Handle which can also be used as an extension with M-52 Ratchet.

One Ea.	Description	One Ea.	Description	One Ea.	Description
MD-605	5/32" 6 Pt. Dp	MD-1211	1 1/32" 12 Pt. Dp	MD-1218	9/16" 12 Pt. Dp
MD-606	3/16" 6 Pt. Dp	MD-1212	3/8" 12 Pt. Dp	M-52	Ratchet
MD-608	1/4" 6 Pt. Dp	MD-1214	7/16" 12 Pt. Dp	M-106	Spinner Hdle
MD-1210	5/16" 12 Pt. Dp	MD-1216	1/2" 12 Pt. Dp		



SET No. WSM-5B

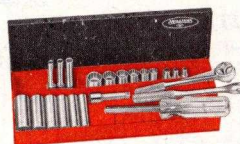
18 Tools in TB-3A Metal Tool Box
9-1/2" x 3-1/2" x 1-1/4"
Total Weight, 2.2 lbs.

SET No. WSM-5BT
Tools Only

Total Weight, 1.1 lbs.

A wide range of instrument and electrical work can be done with these midget wrenches, pliers, sockets and drivers.

One Ea.	Description	One Ea.	Description	One Ea.	Description
M-605	5/32" 6 Pt. Skt	M-1214	7/16" 12 Pt. Skt	1106	13/64 & 3/32" Wr
M-606	3/16" 6 Pt. Skt	M-1216	1/2" 12 Pt. Skt	1107	13/64 & 1/4" Wr
M-608	1/4" 6 Pt. Skt	M-1218	9/16" 12 Pt. Skt	1108	3/32 & 1/32" Wr
M-1210	5/16" 12 Pt. Skt	M-52	Ratchet	1108A	1/4 & 5/16" Wr
M-1211	1 1/32" 12 Pt. Skt	M-102	Ext.	1109	5/16 & 3/8" Wr
M-1212	3/8" 12 Pt. Skt	M-106	Spinner Hdle	PL-1519	Pliers



SET No. WSM-9A

22 Tools in TB-3A Metal Tool Box
9-1/2" x 3-1/2" x 1-1/4"
Total Weight, 2.6 lbs.

SET No. WSM-9AT
Tools Only

Total Weight, 1.5 lbs.

A popular selection of sockets and drivers.

One Ea.	Description	One Ea.	Description	One Ea.	Description
M-605	5/32" 6 Pt. Skt	M-1218	9/16" 12 Pt. Skt	MD-1214	7/16" 12 Pt. Dp
M-606	3/16" 6 Pt. Skt	MD-605	5/32" 6 Pt. Dp	MD-1216	1/2" 12 Pt. Dp
M-608	1/4" 6 Pt. Skt	MD-606	3/16" 6 Pt. Dp	MD-1218	9/16" 12 Pt. Dp
M-1210	5/16" 12 Pt. Skt	MD-608	1/4" 6 Pt. Dp	M-52	Ratchet
M-1211	1 1/32" 12 Pt. Skt	MD-1210	5/16" 12 Pt. Dp	M-102	Extension
M-1212	3/8" 12 Pt. Skt	MD-1211	1 1/32" 12 Pt. Dp	M-106	Spinner Hdle
M-1214	7/16" 12 Pt. Skt	MD-1212	3/8" 12 Pt. Dp	M-140A	Universal Jt.
M-1216	1/2" 12 Pt. Skt				

SET No. WSM-6B

26 Tools in TB-3A Metal Tool Box
9-1/2" x 3-1/2" x 1-1/4"
Total Weight, 2.7 lbs.

SET No. WSM-6BT
Tools Only

Total Weight, 1.6 lbs.

Tackle any nut turning problems up to 9/16" opening.

One Ea.	Description	One Ea.	Description	One Ea.	Description
M-406	3/16" 4 Pt. Skt	M-1211	1 1/32" 12 Pt. Skt	M-140A	Universal Jt
M-407	3/32" 4 Pt. Skt	M-1212	3/8" 12 Pt. Skt	MFE-6	Flex Extension
M-408	1/4" 4 Pt. Skt	M-1214	7/16" 12 Pt. Skt	1106	13/64 & 3/32" Wr
M-810	9/16" 8 Pt. Skt	M-1216	1/2" 12 Pt. Skt	1107	15/64 & 1/4" Wr
M-812	3/8" 8 Pt. Skt	M-1218	9/16" 12 Pt. Skt	1108	3/32 & 1/32" Wr
M-605	5/32" 6 Pt. Skt	M-42A	Flex Handle	1108A	3/4 & 5/16" Wr
M-606	3/16" 6 Pt. Skt	M-52	Ratchet	1109	5/16 & 3/8" Wr
M-608	1/4" 6 Pt. Skt	M-102	Extension	PL-1519	Pliers
M-1210	5/16" 12 Pt. Skt	M-106	Spinner Hdle.		



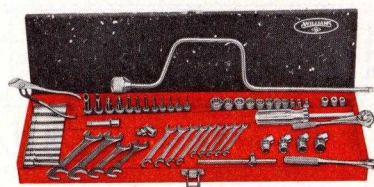
SET No. WSM-7C

25 Tools in TB-3A Metal Tool Box
9-1/2" x 3-1/2" x 1-1/4"
Total Weight, 2.7 lbs.

SET No. WSM-7CT
Tools Only

Total Weight, 1.6 lbs.

One Ea.	Description	One Ea.	Description	One Ea.	Description
M-605	5/32" 6 Pt. Skt	M-52	Ratchet	1120	5/16 & 3/16" Wr
M-606	3/16" 6 Pt. Skt	M-106	Spinner Hdle	1122	1 1/32 & 1/32" Wr
M-608	1/4" 6 Pt. Skt	1112	3/16 & 3/16" Wr	1124	3/8 & 3/8" Wr
M-1210	5/16" 12 Pt. Skt	1113	13/64 & 13/64" Wr	1128	7/16 & 7/16" Wr
M-1211	1 1/32" 12 Pt. Skt	1114	7/32 & 7/32" Wr	1132	1/2 & 1/2" Wr
M-1212	3/8" 12 Pt. Skt	1115	15/64 & 15/64" Wr	1136	9/16 & 9/16" Wr
M-1214	7/16" 12 Pt. Skt	1116	1/4 & 1/4" Wr	1140	5/8 & 5/8" Wr
M-1216	1/2" 12 Pt. Skt	1118	3/32 & 3/32" Wr	PL-1519	Pliers
M-1218	9/16" 12 Pt. Skt				



SET No. WSM-8D

60 Tools in TB-4A Metal Tool Box, 19-1/2" x 5-7/8" x 1-3/8"
Total Weight, 6.8 lbs.

SET No. WSM-8DT
Tools Only

Total Weight, 3.6 lbs.

One Ea.	Description	One Ea.	Description	One Ea.	Description
M-605	5/32" 6 Pt. Skt	M-408	1/4" 4 Pt. Skt	MA-10-1S	.032 Slot S. B
M-606	3/16" 6 Pt. Skt	M-810	9/16" 8 Pt. Skt	MA-10-2S	.040 Slot S. B
M-608	1/4" 6 Pt. Skt	M-812	3/8" 8 Pt. Skt	MU-610	5/16" 6 Pt Uni
M-1210	5/16" 12 Pt. Skt	M-15	Speeder	MU-612	3/8" 6 Pt Uni
M-1211	1 1/32" 12 Pt. Skt	M-20A	Sliding Tee	MU-614	5/16" 6 Pt Uni
M-1212	3/8" 12 Pt. Skt	M-42A	Flex Handle	MU-616	1/2" 6 Pt Uni
M-1214	7/16" 12 Pt. Skt	M-52	Ratchet	1112	3/16 & 3/16" Wr
M-1216	1/2" 12 Pt. Skt	M-102	Extension	1113	13/64 & 13/64" Wr
M-1218	9/16" 12 Pt. Skt	M-106	Spinner Hdle	1114	7/32 & 7/32" Wr
MD-605	5/32" 6 Pt. Dp	M-140A	Universal Jt	1115	15/64 & 15/64" Wr
MD-606	3/16" 6 Pt. Dp	MA-2	3/16" Hex Bit Skt	1116	3/4 & 3/4" Wr
MD-608	1/4" 6 Pt. Dp	MA-2-1/2	5/16" Hex Bit Skt	1118	9/32 & 9/32" Wr
MD-1210	5/16" 12 Pt. Dp	MA-3	3/32" Hex Bit Skt	1120	5/16 & 5/16" Wr
MD-1211	1 1/32" 12 Pt. Dp	MA-3-1/2	7/16" Hex Bit Skt	1122	1 1/32 & 1 1/32" Wr
MD-1212	3/8" 12 Pt. Dp	MA-4	1/4" Hex Bit Skt	1124	3/8 & 3/8" Wr
MD-1214	7/16" 12 Pt. Dp	MA-4-1/2	5/16" Hex Bit Skt	1128	7/16 & 7/16" Wr
MD-1216	1/2" 12 Pt. Dp	MA-5	3/32" Hex Bit Skt	1132	1/2 & 1/2" Wr
MD-1218	9/16" 12 Pt. Dp	MA-6	3/16" Hex Bit Skt	1136	9/16 & 9/16" Wr
M-406	3/16" 4 Pt. Skt	MA-10-1P	No.1 Phillips S.B.	1140	5/8 & 5/8" Wr
M-407	3/32" 4 Pt. Skt	MA-10-2P	No.2 Phillips S.B.	PL-1519	Pliers

3/8 Inch SQUARE DRIVE BANTAM SUPER SOCKET® WRENCHES

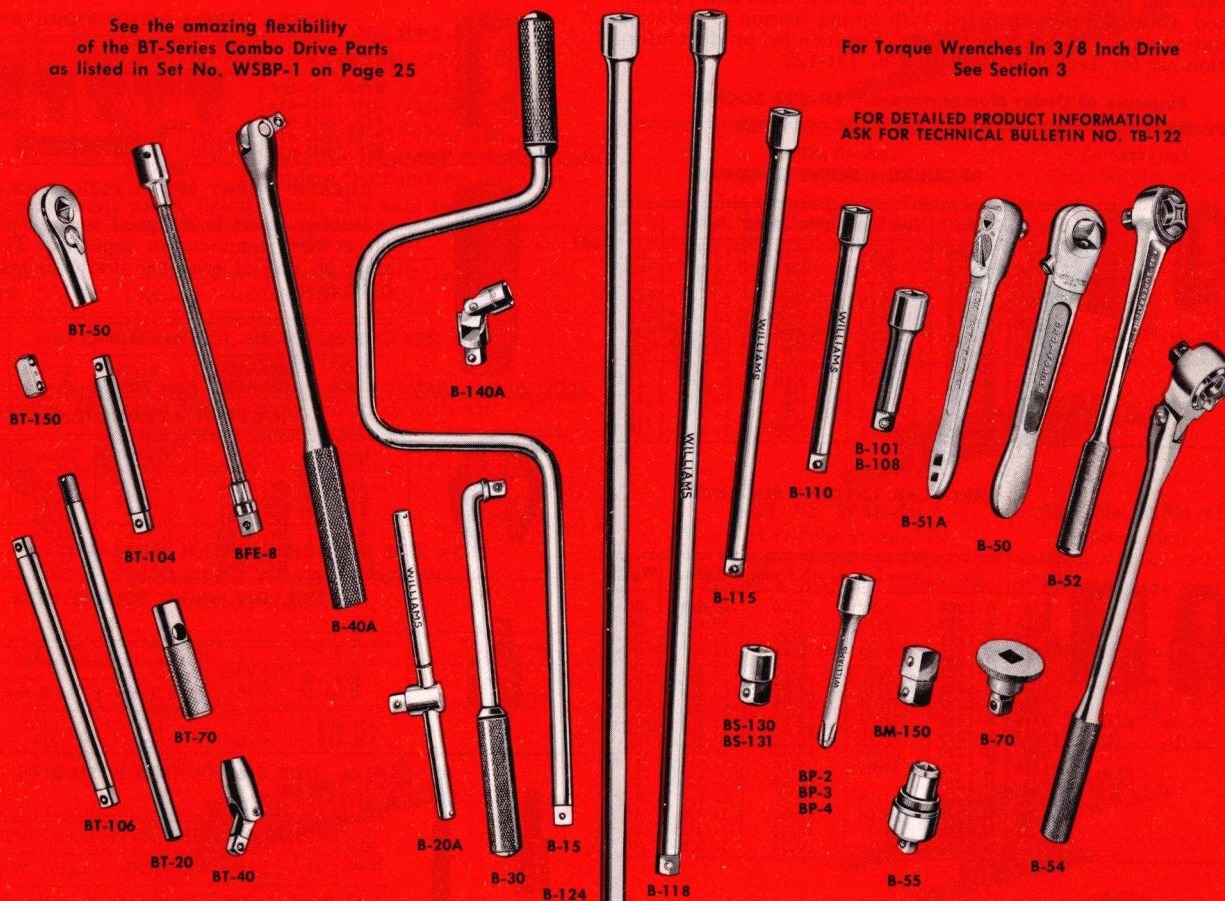
SELECTED ALLOY STEEL

3/8"

See the amazing flexibility
of the BT-Series Combo Drive Parts
as listed in Set No. WSBP-1 on Page 25

For Torque Wrenches In 3/8 Inch Drive
See Section 3

FOR DETAILED PRODUCT INFORMATION
ASK FOR TECHNICAL BULLETIN NO. TB-122



FEDERAL SPEC: GGG-W-641E

No.	PIECE	Wgt.
B-15	Speeder—16-1/8" long; Knurled revolving grip....	1.1
B-20A	Sliding T Handle—6-1/2" long.....	.26
B-30	Offset Handle—7-3/4" long; Knurled grip.....	.50
B-40A	Flex Handle—9-5/8"; flexible head, knurled grip.	.57
B-50	Drop-Forged Ratchet—6-1/2" long; complete with No. B-150 Plug-Connector.....	.43
B-51A	Reversible Ratchet for Refrigeration Service—6-1/2" long. 24 teeth in ratchet-gear. Has both 3/8" square male and 1/4" square female ratchet drive. Also has 3/16" and 1/4" square drive holes in handle end.	.44
B-52	Reversible Ratchet—7-5/8" long. Concentric type Mechanism of 82 tooth action permits rotation of nuts in close quarters. Shift lever reverses action	.56
B-54	Flex Head Ratchet Same mechanism as B-52. Handle flexes 90° either way from horizontal. 10-1/2" long.	.81
B-55	Ratchet Adapter—41 teeth. 2-1/8" long; outside diameter 1-3/16". Knurled shifter reverses action	.31
B-70	Ratchet Spinner. Place between ratchet and socket for fast spinning of nuts by hand. 1-5/16" dia....	.16
B-101	Extension Bar—1-1/2" long.....	.10
B-108	Extension Bar—3" long.....	.16
B-110	Extension Bar—6" long.....	.35

Example of Order Nomenclature: "B-52 RATCHET"

No.	PIECE	Wgt.
B-115	Extension Bar—10-1/2" long.....	.44
B-118	Extension Bar—18" long.....	.84
B-124	Extension Bar—24" long.....	1.
B-140A	Universal Joint—Fitted with spring tension to main- tain operating angle desired—range approx. 140°..	.13
B-150	Ratchet Plug-Connector for B-50 Ratchet.....	.03
BFE-8	Flexible Extension—8" long. Extremely useful in hard to reach spots. Exceptionally strong flexible 5/16" diam. cable.....	.22
BM-150	Adapter—3/8" square male and 1/4" square male....	.03
BP-2	Phillips No. 2 Screwdriver, fits Screws Nos. 5 to 9..	.06
BP-3	Phillips No. 3 Screwdriver, fits Screws Nos. 10 to 16	.13
BP-4	Phillips No. 4 Screwdriver, fits Screws No. 18 and larger	.13
BS-130	Adapter—3/8" square female and 1/2" square male..	.13
BS-131	Adapter—3/8" square male and 1/2" square female..	.15
BT-20	Combo Tee Bar—7-1/2" long, fits BT-70 Handle Grip	.23
BT-40	Combo Flex Head—2-1/4" long, 3/8" male x 3/8" female	.13
BT-50	Combo Reversible Ratchet Head—2-13/16" long...	.29
BT-70	Combo Handle Grip—2-5/8" long, 3/8" female with cross hole.....	.11
BT-104	Combo Extension Bar—3-3/4" long, 3/8" male both ends.....	.19
BT-106	Combo Extension Bar—6" long, 3/8" male both ends	.30
BT-150	Combo Ratchet Plug Connector—1" long, 3/8" x 3/8" male.....	.03

YOU GET THESE OUTSTANDING FEATURES IN WILLIAMS B-52 and B-54 RATCHETS

Stresses evenly dis-
tributed throughout
entire mechanism.

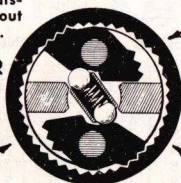
Rugged con-
struction. No
one part
bears bulk
of stresses.

Four winged shifter
for instantaneous
on-off ratcheting.

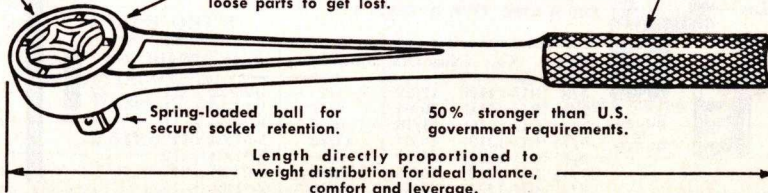
Single unit construction. Entire
mechanism easily removed for
cleaning and servicing. No
loose parts to get lost.

Knurled handle provides
safe, non-irritating grip.

41 Teeth give
82 tooth action
requiring less
than 4 1/2°
swing of han-
dle for com-
plete nut rota-
tion.



The harder the
pull on the
handle, the
more teeth
that come in
contact be-
cause of the
six tooth, two
pawl design.



FOR INDUSTRIAL FINISH RATCHETS AND DRIVERS SEE PAGE 84.

3/8"

3/8 Inch SQUARE DRIVE BANTAM SUPER SOCKET® WRENCHES

SELECTED ALLOY STEEL

Extruded from Selected Alloy Steel, heat-treated and chrome-plated. Universal Sockets fitted with spring tension to maintain operating angle. Range approx. 130°. For detailed product information ask for Technical Bulletin No. TB-122.

Example of Order Nomenclature: "BD-628 SOCKET"

REGULAR 6-POINT SOCKETS



B-608 to B-614

B-616 to B-628

Opng.	No.	Nose Dia.	Dpth.	Opng.	Lgth.	Wgt.
1/4	B-608	3/8	7/32	1- 1/8	.06	
5/16	B-610	7/16	1/4	1- 1/8	.05	
11/32	B-611	1/2	9/32	1- 1/8	.05	
3/8	B-612	17/32	9/32	1- 1/8	.05	
7/16	B-614	5/8	5/16	1- 1/8	.06	
1/2	B-616	11/16	11/32	1- 3/16	.07	
9/16	B-618	49/64	3/8	1- 3/16	.09	
5/8	B-620	27/32	13/32	1- 3/16	.09	
11/16	B-622	59/64	7/16	1- 3/16	.11	
3/4	B-624	1	1/2	1- 3/16	.15	
13/16	B-626	1- 1/16	1/2	1- 1/4	.17	
7/8	B-628	1- 9/64	17/32	1- 1/4	.18	

REGULAR 12-POINT SOCKETS

GGG-W-641E, TYPE II, CLASS 2, STYLE A



B-1208 to B-1214

B-1216 to B-1232

Opng.	No.	Nose Dia.	Dpth.	Opng.	Lgth.	Wgt.
1/4	B-1208	3/8	7/32	1- 1/8	.06	
5/16	B-1210	7/16	1/4	1- 1/8	.05	
11/32	B-1211	1/2	9/32	1- 1/8	.05	
3/8	B-1212	17/32	9/32	1- 1/8	.05	
7/16	B-1214	5/8	5/16	1- 1/8	.06	
1/2	B-1216	11/16	11/32	1- 3/16	.07	
17/32	B-1217	47/64	23/64	1- 3/16	.08	
9/16	B-1218	49/64	3/8	1- 3/16	.09	
19/32	B-1219	13/16	25/64	1- 3/16	.08	
5/8	B-1220	27/32	13/32	1- 3/16	.09	
11/16	B-1222	59/64	7/16	1- 3/16	.11	
3/4	B-1224	1	15/32	1- 3/16	.15	
13/16	B-1226	1- 1/16	1/2	1- 1/4	.17	
7/8	B-1228	1- 9/64	17/32	1- 1/4	.18	
15/16	B-1230	1- 1/4	19/32	1- 3/8	.20	
1	B-1232	1- 5/16	19/32	1- 3/8	.26	

EXTRA DEEP 6-POINT SOCKETS



BD-612 to BD-614

BD-616 to BD-628

Opng.	No.	Nose Dia.	Dpth.	Opng.	Lgth.	Wgt.
3/8	BD-612	9/16	11/32	2	.09	
7/16	BD-614	5/8	3/8	2	.10	
1/2	BD-616	11/16	7/16	2	.10	
9/16	BD-618	25/32	1/2	2	.13	
5/8	BD-620	27/32	17/32	2- 1/4	.16	
11/16	BD-622	15/16	9/16	2- 3/8	.22	
3/4	BD-624	1	19/32	2- 1/2	.22	
13/16	BD-626	1- 1/16	11/16	2- 5/8	.24	
7/8	BD-628	1- 9/64	3/4	2-13/16	.35	

EXTRA DEEP 12-POINT SOCKETS

GGG-W-641E, TYPE II, CLASS 2, STYLE B



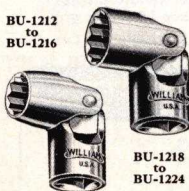
BD-1212 to BD-1214

BD-1216 to BD-1228

Opng.	No.	Nose Dia.	Dpth.	Opng.	Lgth.	Wgt.
3/8	BD-1212	9/16	11/32	2	.09	
7/16	BD-1214	5/8	3/8	2	.10	
1/2	BD-1216	11/16	7/16	2	.10	
9/16	BD-1218	25/32	1/2	2	.13	
5/8	BD-1220	27/32	17/32	2- 1/4	.16	
11/16	BD-1222	15/16	9/16	2- 3/8	.22	
3/4	BD-1224	1	19/32	2- 1/2	.22	
13/16	BD-1226	1- 1/16	11/16	2- 5/8	.24	
7/8	BD-1228	1- 9/64	3/4	2-13/16	.35	

UNIVERSAL 12-POINT SOCKETS

GGG-W-641E, TYPE II, CLASS 4



BU-1212 to BU-1216

BU-1218 to BU-1224

Opng.	No.	Nose Dia.	Dpth.	Opng.	Lgth.	Wgt.
3/8	BU-1212	17/32	1/4	1-25/32	.11	
7/16	BU-1214	39/64	9/32	1-13/16	.11	
1/2	BU-1216	11/16	5/16	1-27/32	.11	
9/16	BU-1218	49/64	11/32	1-57/64	.12	
5/8	BU-1220	27/32	3/8	1-61/64	.13	
11/16	BU-1222	59/64	13/32	1-63/64	.13	
3/4	BU-1224	63/64	7/16	2- 1/64	.15	



†For use on 1/8" Pipe and Drain Plugs

EXTRA DEEP 8-POINT SOCKETS

Opng.	No.	Nose Dia.	Dpth.	Opng.	Lgth.	Wgt.
9/32	†B-409	1/2	1/4		15/16	.05
7/16	BD-814	3/4	9/16	1- 1/2	.09	
1/2	BD-816	7/8	9/16	1- 1/2	.13	
9/16	BD-818	31/32	9/16	1- 1/2	.14	
5/8	BD-820	1- 1/16	5/8	1- 1/2	.18	

RUBBER INSERT SPARK PLUG SOCKETS

Rubber insert is designed to hold plug in place when removing or replacing. The hex male on end of socket is useful in reaching tight spots.

GGG-W-641E, TYPE II, CLASS 5



Opng.	No.	Hex Male	Lgth.	Wgt.
5/8	BD-620P	11/16	2-5/16	.23
13/16	BD-626P	7/8	2-5/16	.36

CROWFOOT ATTACHMENTS



Opng.	No.	Width	Thick.	Wgt.
3/8	BC-1700	29/32	19/64	.08
7/16	BC-1701	29/32	19/64	.08
1/2	BC-1001	1- 1/8	21/64	.11
9/16	BC-1702	1- 1/8	21/64	.11
5/8	BC-1703	1-11/32	25/64	.18
11/16	BC-1003	1-11/32	25/64	.18

HOLLOW SCREW SOCKET BITS

GGG-W-641E, TYPE IV, CLASS 3, STYLE A



Bit No.	Hex Plug Size	For Hollow Screws		Wgt.
		Set Screw	Cap Screw	
AB-608	1/4	1/2	5/16	.06
AB-610	5/16	5/8	3/8	.06

HEX BIT SOCKETS WITH BITS



Sockets and bits furnished disassembled. Key wrench not included.

Bit Size	WITH SHORT BIT			WITH LONG BIT			Skt. Dia.
	No.	Lgth.	Wgt.	No.	Lgth.	Wt.	
3/32	BA-3	1- 7/8	.07	BA-3L	2-15/16	.08	11/16
1/8	BA-4	1-15/16	.07	BA-4L	3-13/16	.08	11/16
5/32	BA-5	1-15/16	.07	BA-5L	3-13/16	.08	11/16
3/16	BA-6	1-15/16	.08	BA-6L	3-13/16	.10	11/16
7/32	BA-7	2- 1/16	.08	BA-7L	3-13/16	.10	11/16
1/4	BA-8	2	.08	BA-8L	4- 3/4	.12	11/16
5/16	BA-10	2	.11	BA-10L	4- 3/4	.17	11/16
3/8	BA-12	2- 1/8	.14	BA-12L	5- 3/4	.25	11/16

HEX BIT SOCKETS WITH SCREWDRIVER BITS



No.	Bit Size	Lgth.	Diam.	Wgt.
-----	----------	-------	-------	------

WITH SLOTTED SCREW BITS

No.	Bit Size	Lgth.	Diam.	Wgt.
BA-10-1S	3/16 x .032	2- 1/4	11/16	.11
BA-10-2S	7/32 x .040	2- 1/4	11/16	.11
BA-10-3S	9/32 x .045	2- 1/4	11/16	.11
BA-10-4S	5/16 x .055	2- 1/4	11/16	.11

WITH PHILLIPS SCREW BITS

No.	Bit Size	Lgth.	Diam.	Wgt.
BA-10-1P	No. 1	2	11/16	.11
BA-10-2P	No. 2	2	11/16	.11
BA-10-3P	No. 3	2	11/16	.11
BA-10-4P	No. 4	2	11/16	.11

SLOTTED SCREW BITS

No.	Tip Size	Lgth.	Wgt.
ASB-1	3/16 x .032	1-1/2	.03
ASB-2	7/32 x .040	1-1/2	.03
ASB-3	9/32 x .045	1-1/2	.03
ASB-4	5/16 x .055	1-1/2	.03

PHILLIPS SCREW BITS

No.	Bit Size	Lgth.	Wgt.
APB-1	No. 1	1-1/4	.03
APB-2	No. 2	1-1/4	.03
APB-3	No. 3	1-1/4	.03
APB-4	No. 4	1-1/4	.03

SHORT HEX BITS

No.	Hex	Lgth.	Wgt.
A-3	3/32	1-1/16	.003
A-4	1/8	1-1/8	.006
A-5	5/32	1-1/8	.01
A-6	3/16	1-1/8	.01
A-7	7/32	1-1/8	.01
A-8	1/4	1-1/4	.02
A-10	5/16	1-1/4	.03
A-12	3/8	1-3/8	.05

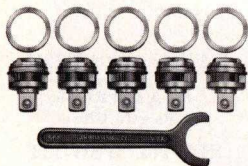
LONG HEX BITS

No.	Hex	Lgth.	Wgt.
A-3L	3/32	2-1/8	.006
A-4L	1/8	3	.01
A-5L	5/32	3	.02
A-6L	3/16	3	.03
A-7L	7/32	3	.04
A-8L	1/4	4	.06
A-10L	5/16	4	.10
A-12L	3/8	5	.18

See Page 129 for ANSI Square and Hexagon Bolts and Nuts, as related to nominal wrench openings.

3/8 Inch SQUARE DRIVE BANTAM SUPERSOCKET® SETS

3/8"

**No. BPA-52
RATCHET REPAIR KIT**For B-52 and B-54
RATCHETS

Total Weight, .08 lb.

Parts for repairing five Ratchets.
Complete instructions included.

Replacement parts, listed below, also sold individually.

No.	Qty.	Description	Wgt. Ea., Lbs.
B-52RK	5	B-52RU Ratchet Unit and B-52G Gland	.13
B-52W	1	Spanner Wrench for use on Gland	.13

B-40RK FLEX HANDLE REPAIR KIT

Total Weight, .06 lb.

For fast, efficient repair of new design B-40A Flex
Handle. Complete instructions included with kit.

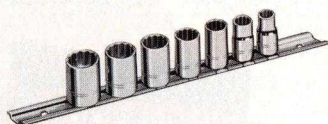
Qty.	No.	Description
1	B-40A-1	Drive Tang
1	B-40A-2	Spring
1	B-40A-3	Hinge Pin

B-54RK HANDLE REPAIR KIT FOR**B-54 FLEX HEAD RATCHET**

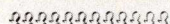
Total Weight, .01 lb.



No.	Qty.	Description
1	B-54-2	Spring
1	B-54-3	Hinge Pin

**SET No. WSB-7R**7 12-Point Sockets
with RB-10 Rail and ClipsA basic set which can be added to for additional cover-
age. 10 clips included with WSB-7R.

One Ea.	Description	One Ea.	Description	One Ea.	Description
B-1212	3/8" 12 Pt Skt	B-1218	9/16" 12 Pt Skt	B-1222	1 1/16" 12 Pt Skt
B-1214	5/16" 12 Pt Skt	B-1220	5/8" 12 Pt Skt	B-1224	3/4" 12 Pt Skt
B-1216	1/2" 12 Pt Skt				

SET No. WSB-7TSockets Only
Total Weight, .75 lb.**RAILS AND CLIPS FOR 1/4" THROUGH 1/2" DRIVE SUPERSOCKET® SETS****RAIL AND CLIPS****CLIPS ONLY****RAILS ONLY**

Rail and clips are handy ways to store sockets. Screw holes at either end of rail permit fastening. Clips slide along rails and sockets slip into clips at drive side. Available as follows: clips only, rails only, or rail and clips. Bright finish. Shipped unassembled.

RAILS AND CLIPS

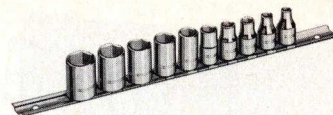
1/4" Drive				3/8" Drive				1/2" Drive			
No.	Lgth.	No. of Clips	Wgt., Ea. Lbs.	No.	Lgth.	No. of Clips	Wgt., Ea. Lbs.	No.	Lgth.	No. of Clips	Wgt., Ea. Lbs.
RM-10	9"	10	.16	RB-5	9"	5	.18	RS-5	9"	5	.21
RM-12	17"	12	.25	RB-10	17"	10	.25	RS-10	17"	10	.28
				RB-12	17"	12	.27	RS-12	17"	12	.31

CLIPS ONLY

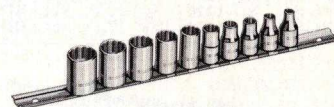
No. RC-25P	No. RC-37P	No. RC-50P
25-1/4" Drive Socket Clips Weight, .10 lbs.	25-3/8" Drive Socket Clips Weight, .15 lbs.	25-1/2" Drive Socket Clips Weight, .30 lbs.

RAILS ONLY

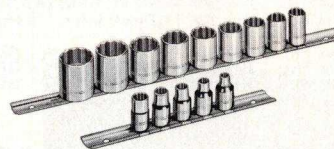
R-9	One 9" long socket rail for use with 1/4" through 1/2" clips	Weight, .15 lbs.
R-17	One 17" long socket rail for use with 1/4" through 1/2" clips	Weight, .25 lbs.

**SET No. WSB-8R**10 Hex Sockets
with RB-10 Rail and ClipsThis popular mix of hex sockets may be stored in many
ways with versatile rail and clips.**SET No. WSB-8T**Sockets Only
Total Weight, .81 lb.

One Ea.	Description	One Ea.	Description	One Ea.	Description
B-608	1/4" Hex Skt	B-614	3/16" Hex Skt	B-620	5/8" Hex Skt
B-610	5/16" Hex Skt	B-616	1/2" Hex Skt	B-622	1 1/16" Hex Skt
B-611	1 1/32" Hex Skt	B-618	3/8" Hex Skt	B-624	3/4" Hex Skt
B-612	3/8" Hex Skt				

**SET No. WSB-9R**10 12-Point Sockets
with RB-10 Rail and ClipsHere's a popular assortment to meet a wide variety of
needs.**SET No. WSB-9T**Sockets Only
Total Weight, .79 lb.

One Ea.	Description	One Ea.	Description	One Ea.	Description
B-1208	1/4" 12 Pt. Skt	B-1214	3/16" 12 Pt. Skt	B-1220	5/8" 12 Pt. Skt
B-1210	5/16" 12 Pt. Skt	B-1216	1/2" 12 Pt. Skt	B-1222	1 1/16" 12 Pt. Skt
B-1211	1 1/32" 12 Pt. Skt	B-1218	3/8" 12 Pt. Skt	B-1224	3/4" 12 Pt. Skt
B-1212	3/8" 12 Pt. Skt				

**SET No. WSB-10R**14 12-Point Sockets
with RB-5 and RB-10 Rail and Clips

There's coverage from 1/4" to 1" with this assortment.

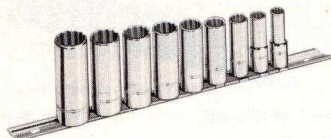
SET No. WSB-10TSockets Only
Total Weight, 1.8 lbs.

One Ea.	Description	One Ea.	Description	One Ea.	Description
B-1208	1/4" 12 Pt Skt	B-1216	1/2" 12 Pt Skt	B-1226	1 3/16" 12 Pt Skt
B-1210	5/16" 12 Pt Skt	B-1218	3/8" 12 Pt Skt	B-1228	7/8" 12 Pt Skt
B-1211	1 1/32" 12 Pt Skt	B-1220	5/8" 12 Pt Skt	B-1230	1 5/16" 12 Pt Skt
B-1212	3/8" 12 Pt Skt	B-1222	1 1/16" 12 Pt Skt	B-1232	1" 12 Pt Skt
B-1214	7/16" 12 Pt Skt	B-1224	3/4" 12 Pt Skt		

3/8"

3/8 Inch SQUARE DRIVE BANTAM SUPER SOCKET® SETS

SELECTED ALLOY STEEL



SET No. WSB-12R
9 Deep 12-Pt. Sockets
with RB-10 Rail and Clips

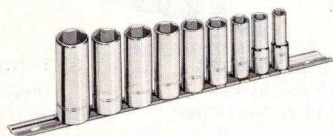
SET No. WSB-12T

Sockets Only

Total Weight, 1.8 lbs.

For deep socket needs. This assortment is ready to go on handy rail and clips.

One Ea.	Description	One Ea.	Description	One Ea.	Description
BD-1212	3/8" 12 Pt. Skt	BD-1218	9/16" 12 Pt. Skt	BD-1224	3/4" 12 Pt. Skt
BD-1214	7/16" 12 Pt. Skt	BD-1220	5/8" 12 Pt. Skt	BD-1226	13/16" 12 Pt. Skt
BD-1216	1/2" 12 Pt. Skt	BD-1222	11/16" 12 Pt. Skt	BD-1228	7/8" 12 Pt. Skt



SET No. WSB-11R
9 Deep Hex Sockets
with RB-10 Rail and Clips

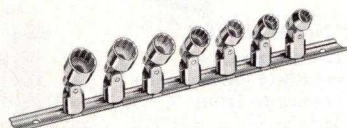
SET No. WSB-11T

Sockets Only

Total Weight, 1.8 lbs.

Here's good coverage on handy rail and clips ready to handle 6-point socket needs.

One Ea.	Description	One Ea.	Description	One Ea.	Description
BD-612	3/8" Hex Skt	BD-618	9/16" Hex Skt	BD-624	3/4" Hex Skt
BD-614	7/16" Hex Skt	BD-620	5/8" Hex Skt	BD-626	13/16" Hex Skt
BD-616	1/2" Hex Skt	BD-622	11/16" Hex Skt	BD-628	7/8" Hex Skt



SET No. WSB-2R
7 Tools
with RB-10 Rail and Clips

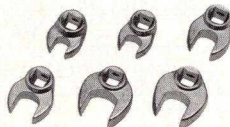
SET No. WSB-2T

Sockets Only

Total Weight, .75 lb.

Versatile universal sockets feature an operating range of 130° and tension springs to hold operating angle.

One Ea.	Description	One Ea.	Description
BU-1212	3/8" 12 Pt Univ Skt	BU-1220	5/8" 12 Pt Univ Skt
BU-1214	7/16" 12 Pt Univ Skt	BU-1222	11/16" 12 Pt Univ Skt
BU-1216	1/2" 12 Pt Univ Skt	BU-1224	3/4" 12 Pt Univ Skt
BU-1218	9/16" 12 Pt Univ Skt		



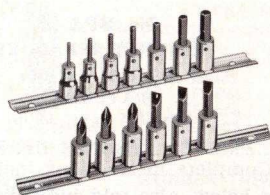
SET No. WSB-3T

6 Tools Only

Total Weight, .50 lb.

A full range of sizes for turning nuts in unusual spots.

One Ea.	Description	One Ea.	Description
BC-1700	3/8" Crowfoot Attach	BC-1702	9/16" Crowfoot Attach
BC-1701	7/16" Crowfoot Attach	BC-1703	5/8" Crowfoot Attach
BC-1001	1/2" Crowfoot Attach	BC-1003	11/16" Crowfoot Attach



SET No. WSB-13R

13 Tools with
RB-5 and RB-10
Rails and Clips

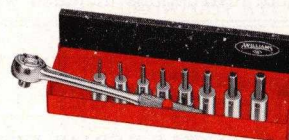
SET No. WSB-13T

Tools Only

Total Weight, 1.3 lbs.

Three styles of bits are included in this set.

One Ea.	Description	One Ea.	Description	One Ea.	Description
BA-4	1/8" Hex Bit Skt	BA-10	3/8" Hex Bit Skt	BA-10-3P	#3 Phillips S.B.
BA-5	5/32" Hex Bit Skt	BA-12	9/16" Hex Bit Skt	BA-10-2S	.040 Slot S.B.
BA-6	3/16" Hex Bit Skt	BA-10-1P	#1 Phillips S.B.	BA-10-3S	.045 Slot S.B.
BA-7	7/32" Hex Bit Skt	BA-10-2P	#2 Phillips S.B.	BA-10-4S	.055 Slot S.B.
BA-8	1/4" Hex Bit Skt				



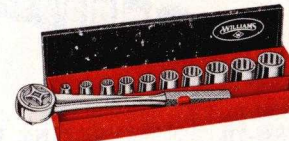
SET No. WSB-17
9 Tools in TB-1B Metal Tool Box
9-1/4" x 2-1/4" x 1-1/4"
Total Weight, 2.4 lbs.

SET No. WSB-17T

Tools Only

Total Weight, 1.3 lbs.

One Ea.	Description	One Ea.	Description	One Ea.	Description
BA-3	5/32" Hex Bit Skt	BA-6	3/16" Hex Bit Skt	BA-10	9/16" Hex Bit Skt
BA-4	1/8" Hex Bit Skt	BA-7	7/32" Hex Bit Skt	BA-12	3/8" Hex Bit Skt
BA-5	5/32" Hex Bit Skt	BA-8	1/4" Hex Bit Skt	B-52	Ratchet



SET No. WSB-1
11 Tools in TB-2A Metal Tool Box
10" x 2-13/16" x 1-3/8"
Total Weight, 2.4 lbs.

SET No. WSB-1T

Tools Only

Total Weight, 1.1 lbs.

An excellent starter set featuring the fine 82 tooth action of the B-52 ratchet.

One Ea.	Description	One Ea.	Description	One Ea.	Description
B-1208	1/4" 12 Pt Skt	B-1214	7/16" 12 Pt Skt	B-1222	11/16" 12 Pt Skt
B-1210	9/16" 12 Pt Skt	B-1216	1/2" 12 Pt Skt	B-1224	3/4" 12 Pt Skt
B-1211	11/32" 12 Pt Skt	B-1218	9/16" 12 Pt Skt	B-52	Ratchet
B-1212	3/8" 12 Pt Skt	B-1220	5/8" 12 Pt Skt		



SET No. WSB-16
10 Tools in TB-2A Metal Tool Box
10" x 2-13/16" x 1-3/8"
Total Weight, 3.2 lbs.

SET No. WSB-16T

Tools Only

Total Weight, 1.9 lbs.

Here is the most popular range of socket sizes combined with the basic drive units for a very versatile set.

One Ea.	Description	One Ea.	Description	One Ea.	Description
B-1212	3/8" 12 Pt. Skt	B-1220	5/8" 12 Pt. Skt	B-40A	Flex Handle
B-1214	7/16" 12 Pt. Skt	B-1222	11/16" 12 Pt. Skt	B-52	Ratchet
B-1216	1/2" 12 Pt. Skt	B-1224	3/4" 12 Pt. Skt	B-108	3" Extension
B-1218	9/16" 12 Pt. Skt				

3/8 Inch SQUARE DRIVE BANTAM SUPER SOCKET® SETS

SELECTED ALLOY STEEL

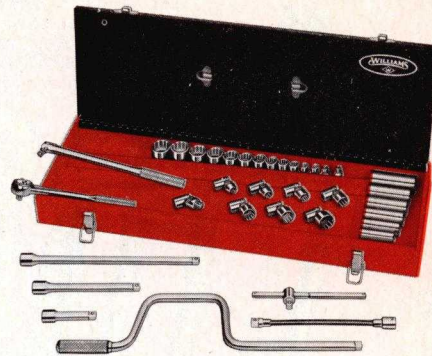
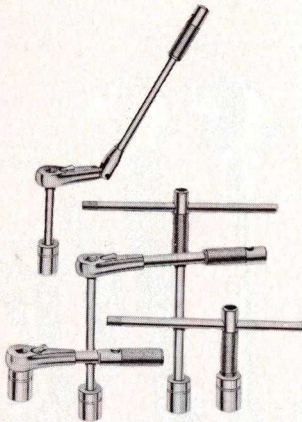
3/8"

2 ALLOY SOCKETS AND SETS

**COMBO SET No. WSBP-1**

18 Tools in TB-14 Metal Tool Box
12-3/4" x 4-1/4" x 1-3/8"
Total Weight, 4.2 lbs.

With only seven basic driver parts you can make hundreds of different drive combinations from a flex head ratchet to sliding tee or flex handle. Does the job of sets twice its size.

**SET No. WSB-5E**

39 Tools in TB-7 Metal Tool Box
23" x 7-3/4" x 2-1/4"
Total Weight, 14.2 lbs.

SET No. WSB-5ET

Tools Only
Total Weight, 7.8 lbs.

An intermediate set with a full range of regular and deep sockets and an ample assortment of drivers. Case has plenty of space for additional items.

One Ea.	Description	One Ea.	Description	One Ea.	Description
B-1208	1/4" 12 Pt Skt	B-1220	5/8" 12 Pt Skt	BT-40	Flex Head
B-1210	5/16" 12 Pt Skt	B-1222	11/16" 12 Pt Skt	BT-50	Ratchet Head
B-1212	3/8" 12 Pt Skt	B-1224	3/4" 12 Pt Skt	BT-70	Grip
B-1214	7/16" 12 Pt Skt	B-1226	13/16" 12 Pt Skt	BT-104	33/4" Ext'n
B-1216	1/2" 12 Pt Skt	B-1228	7/8" 12 Pt Skt	BT-106	6" Ext'n
B-1218	9/16" 12 Pt Skt	BT-20	Tee Bar	BT-150	Plug Conn

**SET No. WSB-4A**

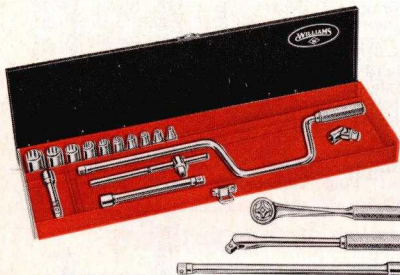
13 Tools in TB-4A Metal Tool Box
19-1/2" x 5-7/8" x 1-3/8"
Total Weight, 6.3 lbs.

SET No. WSB-4AT

Tools Only
Total Weight, 3.1 lbs.

A good basic set for the mechanic who wants a reasonable variety of drivers and sockets. Metal case has space for additional tools.

One Ea.	Description	One Ea.	Description	One Ea.	Description
B-1212	3/8" 12 Pt Skt	B-1222	11/16" 12 Pt Skt	B-108	3" Ext'n
B-1214	7/16" 12 Pt Skt	B-1224	3/4" 12 Pt Skt	B-115	10 1/2" Ext'n
B-1216	1/2" 12 Pt Skt	B-15	Speeder	B-140A	Universal Jt
B-1218	9/16" 12 Pt Skt	B-40A	Flex Handle	.....	.....
B-1220	5/8" 12 Pt Skt	B-52	Ratchet	.....	.....

**SET No. WSB-4**

18 Tools in TB-4A Metal Tool Box
19-1/2" x 5-7/8" x 1-3/8"
Total Weight, 7 lbs.

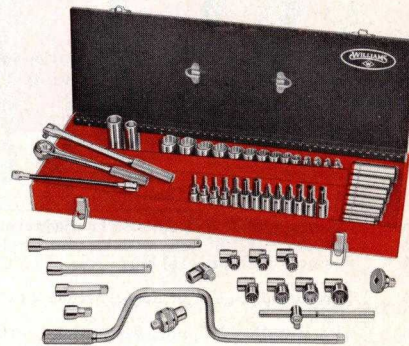
SET No. WSB-4T

Tools Only
Total Weight, 3.8 lbs.

Additional sockets and drivers extend the flexibility of this set beyond that of the WSB-4A set. Socket range from 1/4" to 3/4".

One Ea.	Description	One Ea.	Description	One Ea.	Description
B-1208	1/4" 12 Pt Skt	B-1218	9/16" 12 Pt Skt	B-40A	Flex Handle
B-1210	5/16" 12 Pt Skt	B-1220	5/8" 12 Pt Skt	B-52	Ratchet
B-1211	11/32" 12 Pt Skt	B-1222	11/16" 12 Pt Skt	B-108	3" Ext'n
B-1212	3/8" 12 Pt Skt	B-1224	3/4" 12 Pt Skt	B-110	6" Ext'n
B-1214	7/16" 12 Pt Skt	B-15	Speeder	B-115	10 1/2" Ext'n
B-1216	1/2" 12 Pt Skt	B-20A	Sliding Tee	B-140A	Universal Jt

One Ea.	Description	One Ea.	Description	One Ea.	Description
B-1208	1/4" 12 Pt Skt	B-1232	1" 12 Pt Skt	BU-1218	9/16" Univ Skt
B-1210	5/16" 12 Pt Skt	BD-1212	3/8" 12 Pt Dp	BU-1220	5/8" Univ Skt
B-1211	11/32" 12 Pt Skt	BD-1214	7/16" 12 Pt Dp	BU-1222	11/16" Univ Skt
B-1212	3/8" 12 Pt Skt	BD-1216	1/2" 12 Pt Dp	BU-1224	3/4" Univ Skt
B-1214	7/16" 12 Pt Skt	BD-1218	9/16" 12 Pt Dp	B-15	Speeder
B-1216	1/2" 12 Pt Skt	BD-1220	5/8" 12 Pt Dp	B-20A	Sliding Tee
B-1218	9/16" 12 Pt Skt	BD-1222	11/16" 12 Pt Dp	B-40A	Flex Handle
B-1220	5/8" 12 Pt Skt	BD-1224	3/4" 12 Pt Dp	B-52	Ratchet
B-1222	11/16" 12 Pt Skt	BD-1226	13/16" 12 Pt Dp	B-108	3" Ext'n
B-1224	3/4" 12 Pt Skt	BD-1228	7/8" 12 Pt Dp	B-110	6" Ext'n
B-1226	13/16" 12 Pt Skt	BU-1212	3/8" Univ Skt	B-115	10 1/2" Ext'n
B-1228	7/8" 12 Pt Skt	BU-1214	7/16" Univ Skt	B-140A	Universal Jt
B-1230	15/16" 12 Pt Skt	BU-1216	1/2" Univ Skt	BFE-8	Flexible Ext'n.

**SET No. WSB-6E**

57 Tools in TB-7 Metal Tool Box
23" x 7-3/4" x 2-1/4"
Total Weight, 15.6 lbs.

SET No. WSB-6ET

Tools Only
Total Weight, 9.2 lbs.

This master 3/8" drive set offers the full range of regular, deep and universal sockets, drivers and hex bit sockets. You can be confident that the right tool at the right time can be assembled in seconds.

One Ea.	Description	One Ea.	Description	One Ea.	Description
B-1208	1/4" 12 Pt Skt	BD-1222	11/16" 12 Pt Dp	BU-1212	3/8" Univ Skt
B-1210	5/16" 12 Pt Skt	BD-1224	3/4" 12 Pt Dp	BU-1214	7/16" Univ Skt
B-1211	11/32" 12 Pt Skt	BD-1226	13/16" 12 Pt Dp	BU-1216	1/2" Univ Skt
B-1212	3/8" 12 Pt Skt	BD-1228	7/8" 12 Pt Dp	BU-1218	9/16" Univ Skt
B-1214	7/16" 12 Pt Skt	BD-620P	5/8" Spark Plg Skt	BU-1220	5/8" Univ Skt
B-1216	1/2" 12 Pt Skt	BD-626P	13/16" Spark Plg Skt	BU-1222	11/16" Univ Skt
B-1218	9/16" 12 Pt Skt	BA-4	1/4" Hex Bit Skt	BU-1224	3/4" Univ Skt
B-1220	5/8" 12 Pt Skt	BA-5	5/32" Hex Bit Skt	B-15	Speeder
B-1222	11/16" 12 Pt Skt	BA-6	3/16" Hex Bit Skt	B-20A	Sliding Tee
B-1224	3/4" 12 Pt Skt	BA-7	7/32" Hex Bit Skt	B-40A	Flex Handle
B-1226	13/16" 12 Pt Skt	BA-8	1/4" Hex Bit Skt	B-52	Ratchet
B-1228	7/8" 12 Pt Skt	BA-10	9/16" Hex Bit Skt	B-55	Rat. Adapter
B-1230	15/16" 12 Pt Skt	BA-12	3/8" Hex Bit Skt	B-70	Rat. Spinner
B-1232	1" 12 Pt Skt	BA-10-1P	No.1 Phillips S.B.	B-101	1 1/2" Ext'n
BD-1212	3/8" 12 Pt Dp	BA-10-2P	No.2 Phillips S.B.	B-108	3" Ext'n
BD-1214	7/16" 12 Pt Dp	BA-10-3P	No.3 Phillips S.B.	B-110	6" Ext'n
BD-1216	1/2" 12 Pt Dp	BA-10-2S	.040 Slot S.B.	B-115	10 1/2" Ext'n
BD-1218	9/16" 12 Pt Dp	BA-10-3S	.045 Slot S.B.	B-140A	Universal Jt
BD-1220	5/8" 12 Pt Dp	BA-10-4S	.055 Slot S.B.	BFE-8	Flexible Ext'n

1/2"

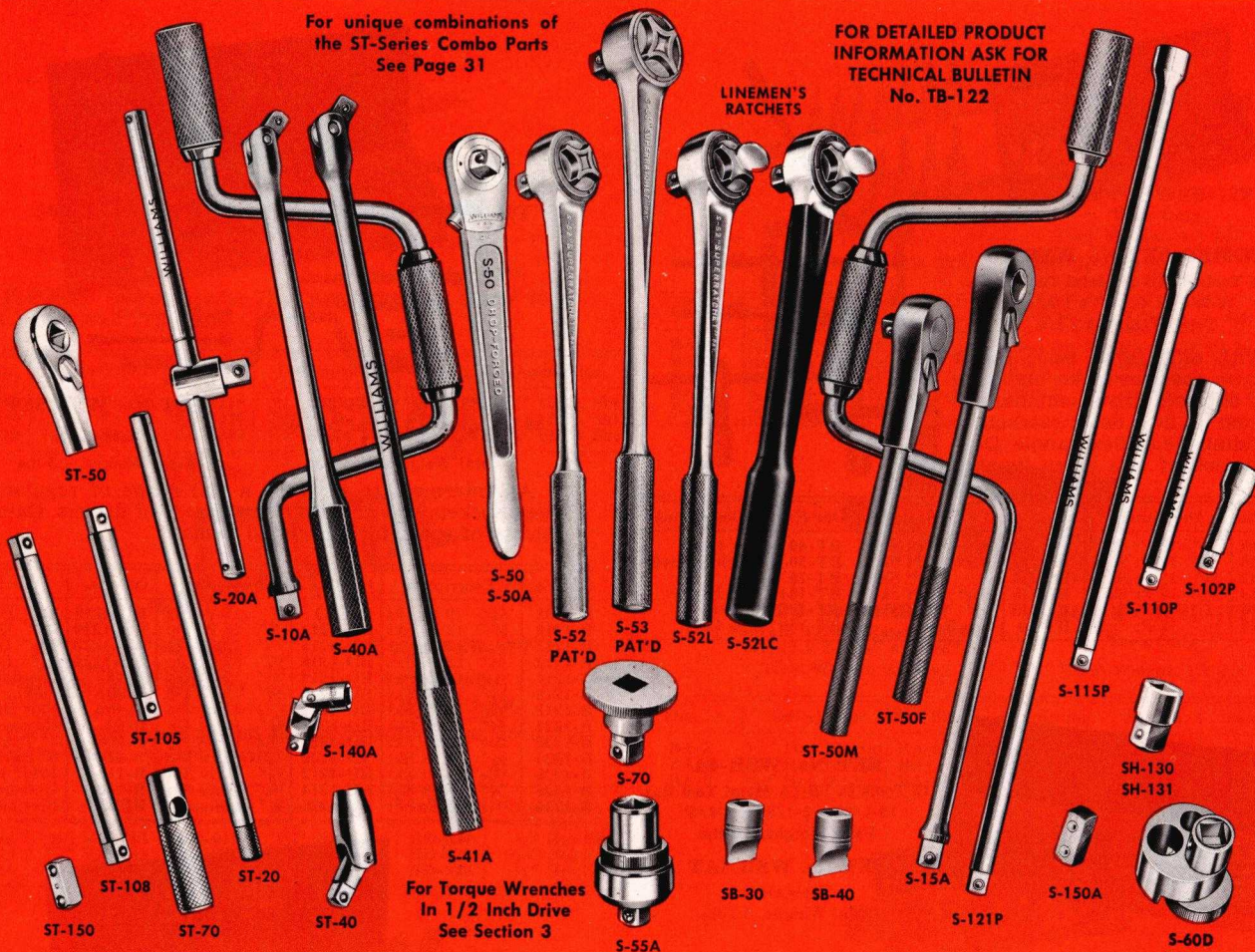
1/2 Inch SQUARE DRIVE STANDARD SUPERSOCKET® WRENCHES

SELECTED ALLOY STEEL

For unique combinations of
the ST-Series Combo Parts
See Page 31

FOR DETAILED PRODUCT
INFORMATION ASK FOR
TECHNICAL BULLETIN
No. TB-122

LINEMEN'S
RATCHETS



FEDERAL SPEC: GGG-W-641E

No.	Description	Wgt.
S-10A	Speeder—13-7/16" long, with knurled revolving grips	1.8
S-15A	Speeder—18-7/8" long, with knurled revolving grips	2.
S-20A	Sliding T Handle—11" long.....	.96
S-40A	Flex Handle—12-1/8" long; flexible head, knurled grip.....	1.4
S-41A	Flex Handle—17" long; flexible head, knurled grip.....	1.8
S-50	Ratchet—10" long, with Locked-in Plug Connector	1.3
S-50A	Ratchet—10" long, without Plug Connector.....	1.3
S-52	Reversible Ratchet—11-1/4" long, 82 tooth action. Shifter reverses action instantly.....	1.2
S-52L	Linemen's Reversible Ratchet—11-1/4" long, 82 tooth action. Special shifter for operators using gloves.....	1.3
S-52LC	Linemen's Reversible Ratchet—11-1/2" long. Same as S-52L with Cementex insulated handle up to head.....	1.5
S-53	Reversible Ratchet—15" long. Has same fine mechanism as S-52 Ratchet.....	1.6
S-55A	Ratchet Adapter—41 teeth, 2-5/8" long; outside diameter 1-5/8". Knurled shifter reverses action instantly.....	.66
S-60D	Stud Remover. Stud capacity 1/4" to 3/4".....	.52

Example of Order Nomenclature: "S-121P EXTENSION"

No.	Description	Wgt.
S-70	Ratchet Spinner—1-3/4" diameter. Use between ratchet and socket to spin nuts fast by hand. ....	.3
S-102P	Extension Bar—2-1/2" long.....	.27
S-110P	Extension Bar—5-1/2" long.....	.53
S-115P	Extension Bar—10" long.....	1.
S-121P	Extension Bar—20" long.....	2.1
S-140A	Universal Joint—Spring tension maintains angle.....	.34
S-150A	Ratchet Plug-Connector for S-50 Ratchet.....	.08
SB-30	Screwdriver "drag link" Socket—5/32 x 15/16" blade.....	.14
SB-40	Screwdriver "drag link" Socket—5/32 x 1-1/4" blade.....	.16
SH-130	Adapter—1/2" square female and 3/4" square male.....	.31
SH-131	Adapter—1/2" square male and 3/4" square female.....	.44
ST-20	Combo Tee Bar—10-1/4" long, fits ST-70 Handle Grip.....	.58
ST-40	Combo Flex Head—3-1/16" long, 1/2" M x 1/2" F.....	.31
ST-50	Combo Reversible Ratchet Head—3-3/4" long.....	.70
ST-50F	Reversible Ratchet—10-1/2" long, 1/2" F in head.....	1.6
ST-50M	Reversible Ratchet—10-1/2" long, 1/2" M in head.....	1.7
ST-70	Combo Handle Grip—3-1/2" long, 1/2" F with cross hole.....	.28
ST-105	Combo Extension Bar—5" long, 1/2" male both ends.....	.41
ST-108	Combo Extension Bar—8" long, 1/2" male both ends.....	.66
ST-150	Combo Ratchet Plug Connector—1-1/4" long, 1/2" x 1/2" male.....	.08

YOU GET THESE OUTSTANDING FEATURES IN WILLIAMS S-52, S-52L, S-52LC and S-53 RATCHETS

Stresses evenly distributed throughout entire mechanism.

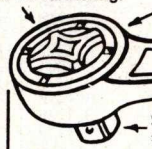
41 Teeth give 82 tooth action requiring less than 4 1/2° swing of handle for complete nut rotation.



Rugged construction. No one part bears bulk of stresses.

The harder the pull on the handle, the more teeth that come in contact because of the six tooth, two pawl design.

Four winged shifter for instantaneous on-off ratcheting.



Single unit construction. Entire mechanism easily removed for cleaning and servicing. No loose parts to get lost.

Knurled handle provides safe, non-irritating grip.

Spring-loaded ball for secure socket retention.

50% stronger than U.S. government requirements.

Length directly proportioned to weight distribution for ideal balance, comfort and leverage.

FOR INDUSTRIAL FINISH RATCHETS AND DRIVERS SEE PAGE 84.

1/2 Inch SQUARE DRIVE STANDARD SUPERSOCKET® WRENCHES

SELECTED ALLOY STEEL

1/2"

Extruded from Selected Alloy Steel, heat-treated and chrome-plated. Universal Sockets are fitted with spring tension to

maintain operating angle. Range approx. 130°. For detailed product information ask for Technical Bulletin No. TB-122.

Example of Order Nomenclature: "SD-1230 SOCKET" etc.

REGULAR 6-POINT SOCKETS

GGG-W-641E, TYPE II, CLASS 1, STYLE A

*Use with Torque wrench required on Ford models having "Marsden" self-locking nuts on connecting rods.



ST-612 to ST-619



ST-620 to ST-640

Opng.	No.	Nose Dia.	Dpth. Opng.	Lgth.	Wgt.
3/8	ST-612	9/16	21/64	1- 7/16	.10
7/16	ST-614	5/8	25/64	1- 1/2	.11
1/2	ST-616	45/64	25/64	1- 1/2	.11
9/16	ST-618	25/32	17/32	1- 1/2	.13
* 9/16	ST-618	3/4	17/32	1- 1/2	.13
19/32	ST-619	53/64	15/32	1-17/32	.13
5/8	ST-620	7/8	17/32	1-17/32	.14
21/32	ST-621	57/64	17/32	1-17/32	.14
11/16	ST-622	61/64	9/16	1-17/32	.17
3/4	ST-624	1- 1/32	9/16	1- 9/16	.19
25/32	ST-625	1- 3/64	19/32	1- 9/16	.19
13/16	ST-626	1- 3/32	21/32	1-19/32	.23
7/8	ST-628	1-11/64	21/32	1-41/64	.27
15/16	ST-630	1- 9/32	11/16	1-41/64	.29
1	ST-632	1-21/64	23/32	1-11/16	.38
1-1/16	ST-634	1-29/64	13/16	1-27/32	.47
1-1/8	ST-636	1-33/64	27/32	1-27/32	.48
1-1/4	ST-640	1-41/64	29/32	2	.59

REGULAR 12-POINT SOCKETS

GGG-W-641E, TYPE II, CLASS 2, STYLE A



ST-1212 to ST-1219



ST-1220 to ST-1248

Opng.	No.	Nose Dia.	Dpth. Opng.	Lgth.	Wgt.
3/8	ST-1212	9/16	21/64	1- 7/16	.10
7/16	ST-1214	5/8	25/64	1- 1/2	.11
1/2	ST-1216	45/64	25/64	1- 1/2	.11
9/16	ST-1218	25/32	1/2	1- 1/2	.13
19/32	ST-1219	53/64	7/16	1-17/32	.13
5/8	ST-1220	7/8	1/2	1-17/32	.14
21/32	ST-1221	57/64	1/2	1-17/32	.14
11/16	ST-1222	61/64	17/32	1-17/32	.17
3/4	ST-1224	1- 1/32	9/16	1- 9/16	.19
25/32	ST-1225	1- 3/64	19/32	1- 9/16	.19
13/16	ST-1226	1- 3/32	21/32	1-19/32	.23
7/8	ST-1228	1-11/64	21/32	1-41/64	.27
15/16	ST-1230	1- 9/32	21/32	1-41/64	.29
31/32	ST-1231	1- 9/32	21/32	1-21/32	.33
1	ST-1232	1-21/64	11/16	1-11/16	.38
1-1/16	ST-1234	1-29/64	13/16	1-27/32	.47
1-1/8	ST-1236	1-33/64	13/16	1-27/32	.48
1-3/16	ST-1238	1-37/64	27/32	1-29/32	.52
1-1/4	ST-1240	1-41/64	7/8	2	.59
1-5/16	ST-1242	1- 3/4	15/16	2- 1/16	.60
1-3/8	ST-1244	1-13/16	1	2- 1/8	.80
1-7/16	ST-1246	1-15/16	1- 1/16	2- 3/16	.90
1-1/2	ST-1248	2	1- 1/8	2- 1/4	.98

EXTRA DEEP 6-POINT SOCKETS

GGG-W-641E, TYPE II, CLASS 1, STYLE B



SD-616 and SD-618



SD-620 to SD-636

Opng.	No.	Nose Dia.	Dpth. Opng.	Lgth.	Wgt.
1/2	SD-616	47/64	9/16	3- 1/4	.26
9/16	SD-618	13/16	19/32	3- 1/4	.26
5/8	SD-620	7/8	5/8	3- 1/4	.26
11/16	SD-622	15/16	5/8	3- 1/4	.26
3/4	SD-624	1- 1/32	21/32	3- 1/4	.37
*13/16	SD-626	1- 1/16	11/16	3- 1/4	.37
7/8	SD-628	1- 3/16	23/32	3- 1/4	.45
15/16	SD-630	1- 1/4	23/32	3- 1/4	.51
1	SD-632	1- 9/32	3/4	3- 1/4	.52
1-1/16	SD-634	1-29/64	13/16	3- 1/4	.63
1-1/8	SD-636	1-33/64	13/16	3- 1/4	.74

EXTRA DEEP 12-POINT SOCKETS

GGG-W-641E, TYPE II, CLASS 2, STYLE B



SD-1216 and SD-1218



SD-1220 to SD-1236

Opng.	No.	Nose Dia.	Dpth. Opng.	Lgth.	Wgt.
1/2	SD-1216	47/64	9/16	3-1/4	.26
9/16	SD-1218	51/64	19/32	3-1/4	.26
5/8	SD-1220	7/8	5/8	3-1/4	.26
11/16	SD-1222	15/16	5/8	3-1/4	.26
3/4	SD-1224	1- 1/32	21/32	3-1/4	.37
25/32	SD-1225	1- 1/16	11/16	3-1/4	.37
*13/16	SD-1226	1- 1/16	11/16	3-1/4	.37
7/8	SD-1228	1- 3/16	23/32	3-1/4	.45
15/16	SD-1230	1- 1/4	23/32	3-1/4	.51
1	SD-1232	1- 9/32	3/4	3-1/4	.52
1-1/16	SD-1234	1-29/64	13/16	3-1/4	.63
1-1/8	SD-1236	1-33/64	13/16	3-1/4	.74

†Not Guaranteed because of extra thin walls.

*Services 14 mm spark plugs.

UNIVERSAL 12-POINT SOCKETS

GGG-W-641E, TYPE II, CLASS 4



Opng.	No.	Nose Dia.	Dpth. Opng.	Lgth.	Wgt.
1/2	SU-1216	45/64	5/16	2-23/64	.28
9/16	SU-1218	25/32	3/8	2- 7/16	.29
5/8	SU-1220	7/8	3/8	2-15/32	.30
11/16	SU-1222	61/64	15/32	2- 9/16	.31
3/4	SU-1224	1- 1/64	17/32	2- 5/8	.32

REGULAR 8-POINT SOCKETS

GGG-W-641E, TYPE II, CLASS 3



ST-810 to ST-814



ST-816 to ST-832

Opng.	No.	Nose Dia.	Dpth. Opng.	Lgth.	Wgt.
5/16	ST-810	5/8	13/32	1- 1/2	.14
3/8	ST-812	47/64	15/32	1- 1/2	.14
7/16	ST-814	27/32	7/16	1-17/32	.14
1/2	ST-816	15/16	9/16	1-17/32	.17
9/16	ST-818	1- 3/64	19/32	1- 9/16	.23
5/8	ST-820	1- 1/8	5/8	1-41/64	.30
11/16	ST-822	1- 7/32	5/8	1-41/64	.32
3/4	ST-824	1- 5/16	5/8	1-11/16	.38
13/16	ST-826	1- 7/16	21/32	1-11/16	.45
7/8	ST-828	1- 1/2	23/32	1-27/32	.53
1	ST-832	1-41/64	3/4	2	.65

HOLLOW SCREW SOCKET BITS

GGG-W-641E, TYPE IV, CLASS 3, STYLE A



Bit No.	Hex Plug Size	For Hollow Screws		Wgt.
		Set Screw	Cap Screw	
AS-612	3/8	3/4	7/16 & 1/2	.11
AS-616	1/2	7/8	5/8	.13
AS-618	9/16	1 & 1-1/8	.....	.15
AS-620	5/8	1-1/4 & 1-3/8	3/4	.14

HEX BIT SOCKETS WITH BITS



Sockets and bits furnished disassembled. Key wrench not included.

Bit Size	WITH SHORT BIT			WITH LONG BIT			Skt. Dia.
	No.	Lgth.	Wgt.	No.	Lgth.	Wgt.	
1/4	SA-8	2-1/4	.23	SA-8L	5	.28	1
5/16	SA-10	2-1/4	.23	SA-10L	5	.29	1
3/8	SA-12	2-3/8	.26	SA-12L	6	.39	1
1/2	SA-16	2-3/8	.30	SA-16L	6	.50	1
9/16	SA-18	2-1/2	.41	SA-18L	7	.75	1
5/8	SA-20	2-1/2	.43	SA-20L	7	.83	1

HEX BIT SOCKETS WITH SCREWDRIVER BITS

No.	Bit Size	Lgth.	Diam.	Wgt.
-----	----------	-------	-------	------

WITH SLOTTED SCREW BITS

SA-10-1S	3/16 x .032	2-1/2	1-3/16	.23
SA-10-2S	7/32 x .040	2-1/2	1-3/16	.23
SA-10-3S	9/32 x .045	2-1/2	1-3/16	.23
SA-10-4S	5/16 x .055	2-1/2	1-3/16	.23

WITH PHILLIPS SCREW BITS

SA-10-1P	No. 1	2-1/4	1-3/16	.23
SA-10-2P	No. 2	2-1/4	1-3/16	.23
SA-10-3P	No. 3	2-1/4	1-3/16	.23
SA-10-4P	No. 4	2-1/4	1-3/16	.23

SLOTTED SCREW BITS



5/16" Hex

PHILLIPS SCREW BITS

No.	Tip Size	Lgth.	Wgt.
ASB-1	3/16 x .032	1-1/2	.03
ASB-2	7/32 x .040	1-1/2	.03
ASB-3	9/32 x .045	1-1/2	.03
ASB-4	5/16 x .055	1-1/2	.03

SHORT HEX BITS

No.	Hex	Lgth.	Wgt.
A-8	1/4	1-1/4	.02
A-10	5/16	1-1/4	.03
A-12	3/8	1-3/8	.05
A-16	1/2	1-3/8	.09
A-18	9/16	1-1/2	.12
A-20	5/8	1-1/2	.14

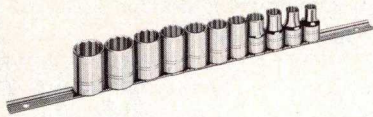
LONG HEX BITS

No.	Hex	Lgth.	Wgt.
A-8L	1/4	4	.06
A-10L	5/16	4	.10
A-12L	3/8	5	.18
A-16L	1/2	5	.31
A-18L	9/16	6	.46
A-20L	5/8	6	.58

See Page 129 for ANSI Square and Hexagon Bolts and Nuts, as related to nominal wrench openings.

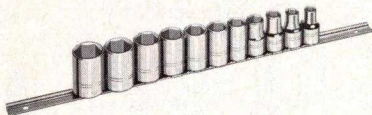
1/2"**1/2 Inch SQUARE DRIVE STANDARD SUPERSOCKET® SETS**

SELECTED ALLOY STEEL

SET No. WSS-10R11 12-Point Sockets
with RS-12 Rail and Clips**SET No. WSS-10T**Sockets Only
Total Weight, 2.3 lbs.

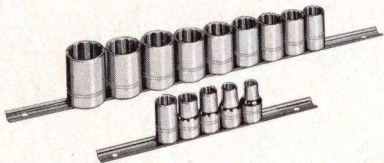
This assortment makes a good starter set.

One Ea.	Description	One Ea.	Description	One Ea.	Description
ST-1212	3/8" 12 Pt Skt	ST-1220	5/8" 12 Pt Skt	ST-1228	7/8" 12 Pt Skt
ST-1214	7/16" 12 Pt Skt	ST-1222	1 1/16" 12 Pt Skt	ST-1230	1 5/16" 12 Pt Skt
ST-1216	1/2" 12 Pt Skt	ST-1224	3/4" 12 Pt Skt	ST-1232	1" 12 Pt Skt
ST-1218	9/16" 12 Pt Skt	ST-1226	1 3/16" 12 Pt Skt	.....	.....

SET No. WSS-10HR11 Hex Sockets
with RS-12 Rail and Clips**SET No. WSS-10HT**Sockets Only
Total Weight, 2.4 lbs.

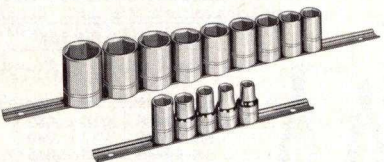
A basic set that provides coverage of popular openings where hex sockets are preferred.

One Ea.	Description	One Ea.	Description	One Ea.	Description
ST-612	3/8" 6 Pt Skt	ST-620	5/8" 6 Pt Skt	ST-628	7/8" 6 Pt Skt
ST-614	7/16" 6 Pt Skt	ST-622	1 1/16" 6 Pt Skt	ST-630	1 5/16" 6 Pt Skt
ST-616	1/2" 6 Pt Skt	ST-624	3/4" 6 Pt Skt	ST-632	1" 6 Pt Skt
ST-618	9/16" 6 Pt Skt	ST-626	1 3/16" 6 Pt Skt	.....	.....

SET No. WSS-16AR14 12-Pt. Sockets
with RS-5 and RS-10
Rails and Clips**SET No. WSS-16AT**Sockets Only
Total Weight, 3.8 lbs.

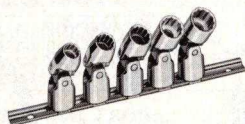
Here's a set with a popular selection of sockets.

One Ea.	Description	One Ea.	Description	One Ea.	Description
ST-1212	3/8" 12 Pt Skt	ST-1222	1 1/16" 12 Pt Skt	ST-1232	1" 12 Pt Skt
ST-1214	7/16" 12 Pt Skt	ST-1224	3/4" 12 Pt Skt	ST-1234	1 1/16" 12 Pt Skt
ST-1216	1/2" 12 Pt Skt	ST-1226	1 3/16" 12 Pt Skt	ST-1236	1 5/16" 12 Pt Skt
ST-1218	9/16" 12 Pt Skt	ST-1228	7/8" 12 Pt Skt	ST-1240	1 3/4" 12 Pt Skt
ST-1220	5/8" 12 Pt Skt	ST-1230	1 5/16" 12 Pt Skt	.....	.....

SET No. WSS-14AR14 Hex Sockets
with RS-5 and RS-10
Rails and Clips**SET No. WSS-14AT**Sockets Only
Total Weight, 4.0 lbs.

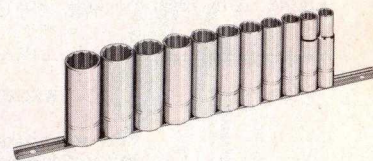
There's additional coverage in larger openings than in set WSS-10HR with WSS-14AR.

One Ea.	Description	One Ea.	Description	One Ea.	Description
ST-612	3/8" 6 Pt Skt	ST-622	1 1/16" 6 Pt Skt	ST-632	1" 6 Pt Skt
ST-614	7/16" 6 Pt Skt	ST-624	3/4" 6 Pt Skt	ST-634	1 1/16" 6 Pt Skt
ST-616	1/2" 6 Pt Skt	ST-626	1 3/16" 6 Pt Skt	ST-636	1 5/16" 6 Pt Skt
ST-618	9/16" 6 Pt Skt	ST-628	7/8" 6 Pt Skt	ST-640	1 3/4" 6 Pt Skt
ST-620	5/8" 6 Pt Skt	ST-630	1 5/16" 6 Pt Skt	.....	.....

SET No. WSS-11R5 Universal Sockets
with RS-5 Rail and Clips**SET No. WSS-11T**Sockets Only
Total Weight, 1.4 lbs.

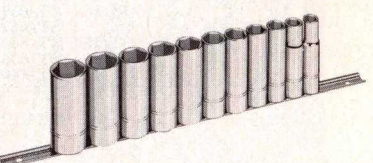
Tension spring holds angle. Operating range approx. 130°.

One Ea.	Description	One Ea.	Description	One Ea.	Description
SU-1216	1/2" 12 Pt Univ	SU-1220	5/8" 12 Pt Univ	SU-1224	3/4" 12 Pt Univ
SU-1218	9/16" 12 Pt Univ	SU-1222	1 1/16" 12 Pt Univ	.....	.....

SET No. WSS-18R11 12-Pt. Deep Sockets
with RS-12 Rail and Clips**SET No. WSS-18T**Sockets Only
Total Weight, 5.3 lbs.

Here's a full range of deep sockets from 1/2" to 1 1/8" by 16ths.

One Ea.	Description	One Ea.	Description	One Ea.	Description
SD-1216	1/2" 12 Pt Dp	SD-1224	3/4" 12 Pt Dp	SD-1232	1" 12 Pt Dp
SD-1218	9/16" 12 Pt Dp	SD-1226	1 1/16" 12 Pt Dp	SD-1234	1 1/16" 12 Pt Dp
SD-1220	5/8" 12 Pt Dp	SD-1228	7/8" 12 Pt Dp	SD-1236	1 5/16" 12 Pt Dp
SD-1222	1 1/16" 12 Pt Dp	SD-1230	1 3/16" 12 Pt Dp	.....	.....

SET No. WSS-17R11 Deep Hex Sockets
with RS-12 Rail and Clips**SET No. WSS-17T**Sockets Only
Total Weight, 5.5 lbs.

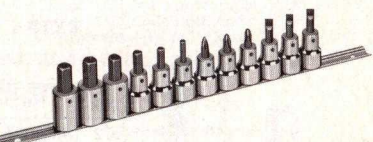
For those who prefer single hex or 6-point deep sockets, this set covers all popular openings from 1/2" thru 1 1/8" by 16ths.

One Ea.	Description	One Ea.	Description	One Ea.	Description
SD-616	1/2" 6 Pt Dp	SD-624	3/4" 6 Pt Dp	SD-632	1" 6 Pt Dp
SD-618	9/16" 6 Pt Dp	SD-626	1 1/16" 6 Pt Dp	SD-634	1 1/16" 6 Pt Dp
SD-620	5/8" 6 Pt Dp	SD-628	7/8" 6 Pt Dp	SD-636	1 5/16" 6 Pt Dp
SD-622	1 1/16" 6 Pt Dp	SD-630	1 3/16" 6 Pt Dp	.....	.....

SET No. WSS-13R10 8-Point Sockets
with RS-10 Rail and Clips**SET No. WSS-13T**Sockets Only
Total Weight, 3.8 lbs.

Where 8-point sockets are needed, here's an assortment that can handle most needs.

One Ea.	Description	One Ea.	Description	One Ea.	Description
ST-812	3/8" 8 Pt Skt	ST-820	5/8" 8 Pt Skt	ST-828	7/8" 8 Pt Skt
ST-814	7/16" 8 Pt Skt	ST-822	1 1/16" 8 Pt Skt	ST-832	1" 8 Pt Skt
ST-816	1/2" 8 Pt Skt	ST-824	3/4" 8 Pt Skt	.....	.....
ST-818	9/16" 8 Pt Skt	ST-826	1 3/16" 8 Pt Skt	.....	.....

SET No. WSS-15R12 Hex Bit Sockets
with RS-12 Rail and Clips**SET No. WSS-15T**Sockets Only
Total Weight, 3.2 lbs.

Here's an assortment of hex bit sockets with slotted bits, Phillips bits, and hex bits that adds versatility to ratchets and flex handles.

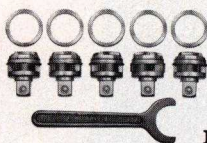
One Ea.	Description	One Ea.	Description	One Ea.	Description
SA-8	1/4" Hex Bit Skt	SA-18	9/16" Hex Bit Skt	SA-10-4P	#4 Phillips S.B.
SA-10	5/16" Hex Bit Skt	SA-20	5/8" Hex Bit Skt	SA-10-2S	.040 Slot S.B.
SA-12	3/8" Hex Bit Skt	SA-10-2P	#2 Phillips S.B.	SA-10-3S	.045 Slot S.B.
SA-16	1/2" Hex Bit Skt	SA-10-3P	#3 Phillips S.B.	SA-10-4S	.055 Slot S.B.

For socket rails and clips information, see page 19.

1/2 Inch SQUARE DRIVE STANDARD SUPERSOCKET® SETS

SELECTED ALLOY STEEL

1/2"



No. SPA-52 RATCHET REPAIR KIT For S-52 and S-53 RATCHETS

Total Weight, 1.5 lbs.

Parts for repairing five S-52 or S-53 Ratchets. Complete instructions included.

Replacement parts, listed below, also sold individually.

No.	Qty.	Description	Wgt. Ea., Lbs.
S-52RK	5	S-52RU Ratchet Unit and S-52G Gland	.27
S-52W	1	Spanner Wrench for use on Gland	.17

S-52 LRK RATCHET REPAIR KIT

Total Weight, .30 lb.

1 each: S-52 LRK Ratchet unit and S-52 G Gland, for repair of S-52 L and S-52 LC ratchets.

S-40RK FLEX HANDLE REPAIR KIT

Total Weight, .15 lb.

For fast, efficient repair of new design S-40A Flex Handle. Complete instructions included with kit.



Qty.	No.	Description
1	S-40A-1	Drive Tang
1	S-40A-2	Spring
1	S-40A-3	Hinge Pin

S-41RK FLEX HANDLE REPAIR KIT

Total Weight, .15 lb.

For fast, efficient repair of new design S-41A Flex Handle. Complete instructions included with kit.



Qty.	No.	Description
1	S-41A-1	Drive Tang
1	S-41A-2	Spring
1	S-41A-3	Hinge Pin



SET No. WSS-1A

12 Tools in TB-5 Metal Tool Box
12-1/2" x 3-3/4" x 2-1/4"

Total Weight, 5.4 lbs.

SET No. WSS-1AT Tools Only

Total Weight, 3.5 lbs.

Fits all regular and finished series hex nuts and bolts and hex head cap screws 1/4" thru 5/8" diam. and heavy series hex nuts and bolts 1/4" thru 9/16" diam.

One Ea.	Description	One Ea.	Description	One Ea.	Description
ST-1212	3/8" 12 Pt Skt	ST-1220	5/8" 12 Pt Skt	ST-1228	7/8" 12 Pt Skt
ST-1214	7/16" 12 Pt Skt	ST-1222	1 1/16" 12 Pt Skt	ST-1230	1 1/8" 12 Pt Skt
ST-1216	1/2" 12 Pt Skt	ST-1224	3/4" 12 Pt Skt	ST-1232	1" 12 Pt Skt
ST-1218	9/16" 12 Pt Skt	ST-1226	1 1/16" 12 Pt Skt	S-52	Ratchet



SET No. WSS-4A

17 Tools in TB-6 Metal Tool Box
12-1/2" x 3-3/4" x 2-1/4"

Total Weight, 8.4 lbs.

SET No. WSS-4AT Tools Only

Total Weight, 6.4 lbs.

This set fits all new and old regular, heavy and finished series hex nuts and bolts and hex head cap screws 1/4" thru 3/4" diam.

One Ea.	Description	One Ea.	Description	One Ea.	Description
ST-1212	3/8" 12 Pt Skt	ST-1224	3/4" 12 Pt Skt	ST-1236	1 1/8" 12 Pt Skt
ST-1214	7/16" 12 Pt Skt	ST-1226	1 1/16" 12 Pt Skt	ST-1240	1 1/4" 12 Pt Skt
ST-1216	1/2" 12 Pt Skt	ST-1228	7/8" 12 Pt Skt	S-52	Ratchet
ST-1218	9/16" 12 Pt Skt	ST-1230	1 1/16" 12 Pt Skt	S-102P	2 1/2" Ext'n
ST-1220	5/8" 12 Pt Skt	ST-1232	1" 12 Pt Skt	S-115P	2 1/2" Ext'n
ST-1222	1 1/16" 12 Pt Skt	ST-1234	1 1/8" 12 Pt Skt		

SET No. WSS-2A

9 Tools in TB-5 Metal Tool Box

12-1/2" x 3-3/4" x 2-1/4"

Total Weight, 5.6 lbs.

SET No. WSS-2AT Tools Only

Total Weight, 3.7 lbs.



An unusually handy set to have on hand where heavy series hex nuts and bolts 1/4" thru 3/4" diam. are in constant use.

One Ea.	Description	One Ea.	Description	One Ea.	Description
ST-1216	1/2" 12 Pt Skt	ST-1224	3/4" 12 Pt Skt	ST-1234	1 1/16" 12 Pt Skt
ST-1218	9/16" 12 Pt Skt	ST-1228	7/8" 12 Pt Skt	ST-1240	1 1/4" 12 Pt Skt
ST-1222	1 1/16" 12 Pt Skt	ST-1230	1 1/16" 12 Pt Skt	S-52	Ratchet



SET No. WSS-3A

11 Tools in TB-5 Metal Tool Box
12-1/2" x 3-3/4" x 2-1/4"

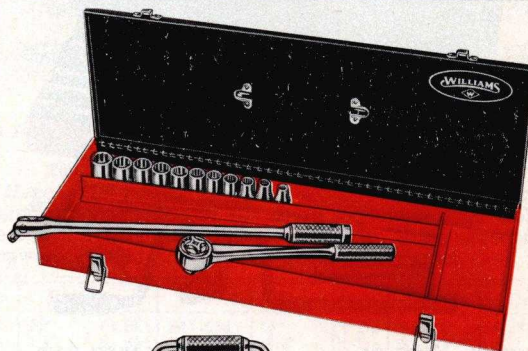
Total Weight, 5.4 lbs.

SET No. WSS-3AT Tools Only

Total Weight, 3.5 lbs.

This set fits all finished series hex nuts and bolts and hex head cap screws 1/4" thru 3/4" diam. and most regular and heavy series hex nuts and bolts 1/4" thru 3/4" diam.

One Ea.	Description	One Ea.	Description	One Ea.	Description
ST-1214	7/16" 12 Pt Skt	ST-1222	1 1/16" 12 Pt Skt	ST-1230	1 1/8" 12 Pt Skt
ST-1216	1/2" 12 Pt Skt	ST-1224	3/4" 12 Pt Skt	ST-1236	1 1/4" 12 Pt Skt
ST-1218	9/16" 12 Pt Skt	ST-1226	1 1/16" 12 Pt Skt	S-52	Ratchet
ST-1220	5/8" 12 Pt Skt	ST-1228	7/8" 12 Pt Skt		



SET No. WSS-5C

16 Tools in TB-7 Metal Tool Box, 23" x 7-3/4" x 2-1/4"

Total Weight, 15.6 lbs.

SET No. WSS-5CT Tools Only

Total Weight, 9.2 lbs.

This popular range of socket openings and the variety of drivers and extensions makes an excellent mechanic's starter set.

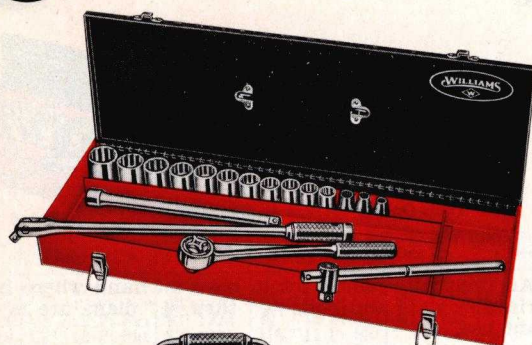
One Ea.	Description	One Ea.	Description	One Ea.	Description
ST-1212	3/8" 12 Pt Skt	ST-1224	3/4" 12 Pt Skt	S-41A	Flex Handle
ST-1214	7/16" 12 Pt Skt	ST-1226	1 1/16" 12 Pt Skt	S-52	Ratchet
ST-1216	1/2" 12 Pt Skt	ST-1228	7/8" 12 Pt Skt	S-110P	5 1/2" Ext'n
ST-1218	9/16" 12 Pt Skt	ST-1230	1 1/16" 12 Pt Skt	S-140A	Universal Jt
ST-1220	5/8" 12 Pt Skt	ST-1232	1" 12 Pt Skt		
ST-1222	1 1/16" 12 Pt Skt	S-15A	Speeder		

1/2"

1/2 Inch SQUARE DRIVE STANDARD SUPERSOCKET® SETS

SELECTED ALLOY STEEL

2 ALLOY SOCKETS AND SETS

**SET No. WSS-5B**

22 Tools in TB-7 Metal Tool Box
23" x 7-3/4" x 2-1/4"
Total Weight, 18 lbs.

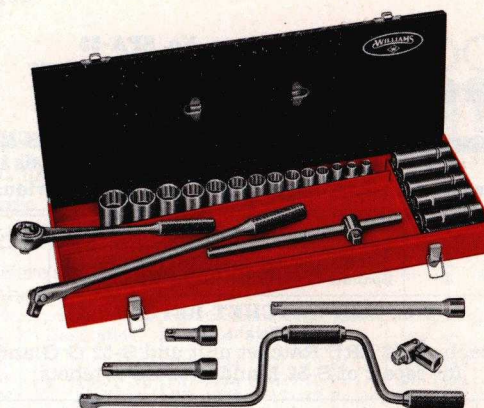
SET No. WSS-5BT

Tools Only

Total Weight, 12.6 lbs.

For the industrial or automotive mechanic this is an ideal, basic set with its full range of 12-point socket sizes from 3/8" thru 1 1/4". The variety of driver parts makes possible endless combinations to solve many otherwise difficult nut-turning problems.

One Ea.	Description	One Ea.	Description	One Ea.	Description
ST-1212	3/8" 12 Pt Skt	ST-1228	7/8" 12 Pt Skt	S-41A	Flex Handle
ST-1214	7/16" 12 Pt Skt	ST-1230	1 1/16" 12 Pt Skt	S-52	Ratchet
ST-1216	1/2" 12 Pt Skt	ST-1232	1 1/8" 12 Pt Skt	S-102P	2 1/2" Ext'n
ST-1218	9/16" 12 Pt Skt	ST-1234	1 1/16" 12 Pt Skt	S-110P	5 1/2" Ext'n
ST-1220	5/8" 12 Pt Skt	ST-1236	1 3/8" 12 Pt Skt	S-115P	10 1/2" Ext'n
ST-1222	1 1/16" 12 Pt Skt	ST-1240	1 1/4" 12 Pt Skt	S-140A	Universal Jt
ST-1224	3/4" 12 Pt Skt	S-15A	Speeder		
ST-1226	1 1/8" 12 Pt Skt	S-20A	Sliding Tee		

**SET No. WSS-6B**

33 Tools in TB-7 Metal Tool Box
23" x 7-3/4" x 2-1/4"
Total Weight, 24.5 lbs.

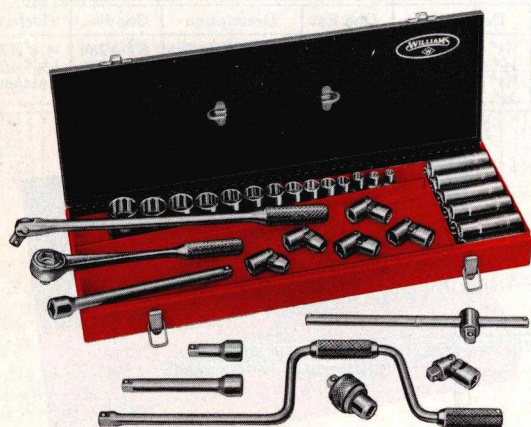
SET No. WSS-6BT

Tools Only

Total Weight, 18 lbs.

This set has a more extensive range than the WSS-5B through the addition of 11 popular deep sockets. There's no safe substitute for a deep socket's versatility.

One Ea.	Description	One Ea.	Description	One Ea.	Description
ST-1212	3/8" 12 Pt Skt	ST-1234	1 1/16" 12 Pt Skt	SD-1232	1" 12 Pt Dp
ST-1214	7/16" 12 Pt Skt	ST-1236	1 1/8" 12 Pt Skt	SD-1234	1 1/16" 12 Pt Dp
ST-1216	1/2" 12 Pt Skt	ST-1240	1 1/4" 12 Pt Skt	SD-1236	1 1/8" 12 Pt Dp
ST-1218	9/16" 12 Pt Skt	SD-1216	3/4" 12 Pt Dp	S-15A	Speeder
ST-1220	5/8" 12 Pt Skt	SD-1218	7/8" 12 Pt Dp	S-20A	Sliding Tee
ST-1222	1 1/16" 12 Pt Skt	SD-1220	5/8" 12 Pt Dp	S-41A	Flex Handle
ST-1224	3/4" 12 Pt Skt	SD-1222	1 1/16" 12 Pt Dp	S-52	Ratchet
ST-1226	1 1/8" 12 Pt Skt	SD-1224	3/4" 12 Pt Dp	S-102P	2 1/2" Ext'n
ST-1228	7/8" 12 Pt Skt	SD-1226	1 1/16" 12 Pt Dp	S-110P	5 1/2" Ext'n
ST-1230	1 1/8" 12 Pt Skt	SD-1228	7/8" 12 Pt Dp	S-115P	10 1/2" Ext'n
ST-1232	1" 12 Pt Skt	SD-1230	1 1/8" 12 Pt Dp	S-140A	Universal Jt

**SET No. WSS-8A**

39 Tools in TB-7 Metal Tool Box
23" x 7-3/4" x 2-1/4"
Total Weight, 27 lbs.

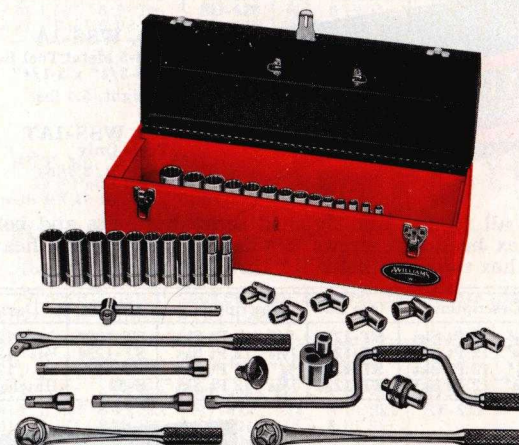
SET No. WSS-8AT

Tools Only

Total Weight, 21 lbs.

This particular combination of regular, deep and universal 12-point sockets covers the most popular opening sizes in the various styles. Coupled with the assortment of handles and attachments, this set offers unusual versatility.

One Ea.	Description	One Ea.	Description	One Ea.	Description
ST-1212	3/8" 12 Pt Skt	ST-1240	1 1/4" 12 Pt Skt	SU-1218	9/16" 12 Pt Univ
ST-1214	7/16" 12 Pt Skt	SD-1216	3/4" 12 Pt Dp	SU-1220	5/8" 12 Pt Univ
ST-1216	1/2" 12 Pt Skt	SD-1218	7/8" 12 Pt Dp	SU-1222	1 1/16" 12 Pt Univ
ST-1218	9/16" 12 Pt Skt	SD-1220	5/8" 12 Pt Dp	SU-1224	3/4" 12 Pt Univ
ST-1220	5/8" 12 Pt Skt	SD-1222	1 1/16" 12 Pt Dp	S-15A	Speeder
ST-1222	1 1/16" 12 Pt Skt	SD-1224	3/4" 12 Pt Dp	S-20A	Sliding Tee
ST-1224	3/4" 12 Pt Skt	SD-1226	1 1/16" 12 Pt Dp	S-41A	Flex Handle
ST-1226	1 1/8" 12 Pt Skt	SD-1228	7/8" 12 Pt Dp	S-52	Ratchet
ST-1228	7/8" 12 Pt Skt	SD-1230	1 1/8" 12 Pt Dp	S-55A	Ratchet Adapt
ST-1230	1 1/8" 12 Pt Skt	SD-1232	1" 12 Pt Dp	S-102P	2 1/2" Ext'n
ST-1232	1" 12 Pt Skt	SD-1234	1 1/16" 12 Pt Dp	S-110P	5 1/2" Ext'n
ST-1234	1 1/16" 12 Pt Skt	SD-1236	1 1/8" 12 Pt Dp	S-115P	10 1/2" Ext'n
ST-1236	1 1/8" 12 Pt Skt	SU-1216	3/8" 12 Pt Univ	S-140A	Universal Jt

**SET No. WSS-7F**

42 Tools in TB-8 Metal Tool Box
23-1/4" x 7-1/2" x 9-1/4"
Total Weight, 33.5 lbs.

SET No. WSS-7FT

Tools Only

Total Weight, 23 lbs.

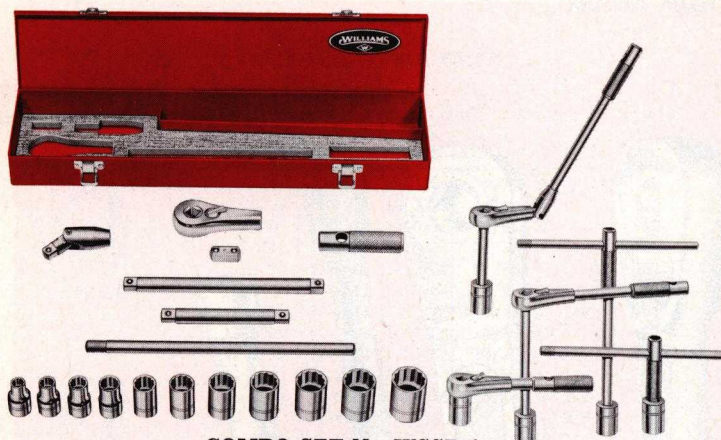
This master set services all old and new regular, heavy and finished series hex nuts and bolts and hex head cap screws from 1/4" thru 3/4" diam. To add tote tray to fit, order No. TBT-1.

One Ea.	Description	One Ea.	Description	One Ea.	Description
ST-1212	3/8" 12 Pt Skt	SD-1216	3/4" 12 Pt Dp	SU-1222	1 1/16" 12 Pt Uni
ST-1214	7/16" 12 Pt Skt	SD-1218	7/8" 12 Pt Dp	SU-1224	3/4" 12 Pt Uni
ST-1216	1/2" 12 Pt Skt	SD-1220	5/8" 12 Pt Dp	S-15A	Speeder
ST-1218	9/16" 12 Pt Skt	SD-1222	1 1/16" 12 Pt Dp	S-20A	Sliding Tee
ST-1220	5/8" 12 Pt Skt	SD-1224	3/4" 12 Pt Dp	S-41A	Flex Handle
ST-1222	1 1/16" 12 Pt Skt	SD-1226	1 1/16" 12 Pt Dp	S-52	11 1/2" Ratchet
ST-1224	3/4" 12 Pt Skt	SD-1228	7/8" 12 Pt Dp	S-53	15" Ratchet
ST-1226	1 1/8" 12 Pt Skt	SD-1230	1 1/8" 12 Pt Dp	S-55A	Ratchet Adapt
ST-1228	7/8" 12 Pt Skt	SD-1232	1" 12 Pt Dp	S-60D	Stud Remover
ST-1230	1 1/8" 12 Pt Skt	SD-1234	1 1/16" 12 Pt Dp	S-70	Reht Spinner
ST-1232	1" 12 Pt Skt	SD-1236	1 1/8" 12 Pt Dp	S-102P	2 1/2" Ext'n
ST-1234	1 1/16" 12 Pt Skt	SU-1216	3/8" 12 Pt Uni	S-110P	5 1/2" Ext'n
ST-1236	1 1/8" 12 Pt Skt	SU-1218	9/16" 12 Pt Uni	S-115P	10 1/2" Ext'n
ST-1240	1 1/4" 12 Pt Skt	SU-1220	5/8" 12 Pt Uni	S-140A	Universal Jt

1/2 Inch SQUARE DRIVE STANDARD SUPERSOCKET® SETS

SELECTED ALLOY STEEL

1/2"

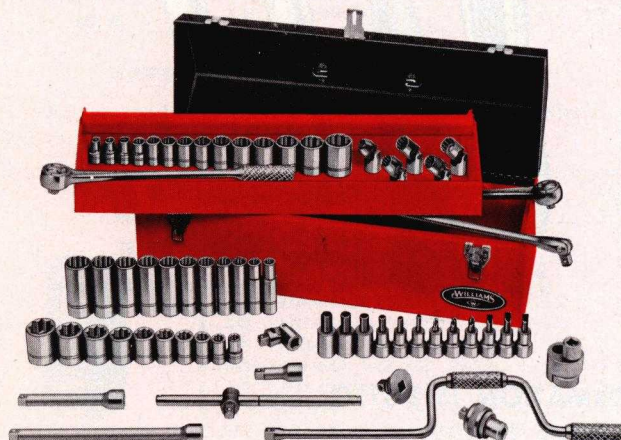
**COMBO SET No. WSSP-1**

18 Tools in TB-15 Metal Tool Box, 18" x 4-1/2" x 2"

Total Weight, 8.1 lbs.

Seven basic drive parts make regular and flex head ratchets, tee and flex handles. Here is more toolpower than sets twice its size.

One Ea.	Description	One Ea.	Description	One Ea.	Description
ST-1212	3/8" 12 Pt Skt	ST-1224	3/8" 12 Pt Skt	ST-40	Flex Head
ST-1214	7/16" 12 Pt Skt	ST-1226	13/16" 12 Pt Skt	ST-50	Ratchet Head
ST-1216	1/2" 12 Pt Skt	ST-1228	7/8" 12 Pt Skt	ST-70	Grip
ST-1218	9/16" 12 Pt Skt	ST-1230	15/16" 12 Pt Skt	ST-105	5" Ext'n
ST-1220	5/8" 12 Pt Skt	ST-1232	1" 12 Pt Skt	ST-108	8" Ext'n
ST-1222	1 1/16" 12 Pt Skt	ST-20	Tee Bar	ST-150	Connector

**SET No. WSS-7J**64 Tools in TB-8T Metal Tool Box
23-1/4" x 7-1/2" x 9-1/4"

Total Weight, 40.1 lbs.

Here is a real master 1/2" drive set. The full range of 8-point sockets services square head cap screws up to 1" diam. and square head bolts and nuts up to 5/8" diam.

One Ea.	Description	One Ea.	Description	One Ea.	Description
ST-1212	3/8" 12 Pt Skt	ST-828	1/8" 8 Pt Skt	SA-10-2S	.040 Slot S. B.
ST-1214	7/16" 12 Pt Skt	ST-832	8 Pt Skt	SA-10-3S	.045 Slot S. B.
ST-1216	1/2" 12 Pt Skt	SD-1216	1/2" 12 Pt Dp	SA-10-4S	.055 Slot S. B.
ST-1218	9/16" 12 Pt Skt	SD-1218	9/16" 12 Pt Dp	SU-1216	1/2" Univ. Skt
ST-1220	5/8" 12 Pt Skt	SD-1220	5/8" 12 Pt Dp	SU-1218	9/16" Univ. Skt
ST-1222	1 1/16" 12 Pt Skt	SD-1222	1 1/16" 12 Pt Dp	SU-1220	5/8" Univ. Skt
ST-1224	1 3/16" 12 Pt Skt	SD-1224	1 3/16" 12 Pt Dp	SU-1222	1 1/16" Univ. Skt
ST-1226	1 1/8" 12 Pt Skt	SD-1226	1 1/8" 12 Pt Dp	SU-1224	1 3/16" Univ. Skt
ST-1228	1 1/4" 12 Pt Skt	SD-1228	1 1/4" 12 Pt Dp	S-15A	Speeder
ST-1230	1 1/2" 12 Pt Skt	SD-1230	1 1/2" 12 Pt Dp	S-20A	Sliding Tee
ST-1232	1 5/8" 12 Pt Skt	SD-1232	1 5/8" 12 Pt Dp	S-41A	Flex Handle
ST-1234	1 3/4" 12 Pt Skt	SD-1234	1 3/4" 12 Pt Dp	S-52	11 1/4" Ratchet
ST-1236	1 7/8" 12 Pt Skt	SD-1236	1 7/8" 12 Pt Dp	S-53	15" Ratchet
ST-1240	2" 12 Pt Skt	SA-8	Hex Bit Skt	S-55A	Ratchet Adapt
ST-812	3/8" 8 Pt Skt	SA-10	Hex Bit Skt	S-60D	Stud Remover
ST-814	7/16" 8 Pt Skt	SA-12	Hex Bit Skt	S-70	Reht Spinner
ST-816	1/2" 8 Pt Skt	SA-16	Hex Bit Skt	S-102P	2 1/2" Ext'n
ST-818	9/16" 8 Pt Skt	SA-18	Hex Bit Skt	S-110P	5 1/2" Ext'n
ST-820	5/8" 8 Pt Skt	SA-20	Hex Bit Skt	S-115P	10 1/2" Ext'n
ST-822	1 1/16" 8 Pt Skt	SA-10-2P	No. 2 Phillips S. B.	S-140A	Universal Jt
ST-824	3/4" 8 Pt Skt	SA-10-3P	No. 3 Phillips S. B.		
ST-826	1 1/8" 8 Pt Skt	SA-10-4P	No. 4 Phillips S. B.		

**SET No. WSS-19A**86 Tools in TB-1001 Metal Tool Chest
22-5/8" x 10-1/8" x 10"

Total Weight, 68.4 lbs.

SET No. WSS-19AT

86 Tools Only

Total Weight, 32.4 lbs.

Here is the largest and most versatile assortment in Williams wide selection of 1/2" drive socket sets. All tools can be conveniently and securely stored in this rugged three-drawer chest finished in red baked-on enamel.

One Ea.	Description	One Ea.	Description	One Ea.	Description
ST-612	3/8" 6 Pt Skt	SD-624	3/4" 6 Pt Dp	SA-10	5/16" Hex Bit Skt
ST-614	7/16" 6 Pt Skt	SD-626	13/16" 6 Pt Dp	SA-12	3/8" Hex Bit Skt
ST-616	1/2" 6 Pt Skt	SD-628	7/8" 6 Pt Dp	SA-16	1/2" Hex Bit Skt
ST-618	9/16" 6 Pt Skt	SD-630	15/16" 6 Pt Dp	SA-18	5/8" Hex Bit Skt
ST-620	5/8" 6 Pt Skt	SD-632	1" 6 Pt Dp	SA-20	5/8" Hex Bit Skt
ST-622	1 1/16" 6 Pt Skt	SD-634	1 1/16" 6 Pt Dp	SA-10-2P	No. 2 Phillips S. B.
ST-624	1 3/16" 6 Pt Skt	SD-636	1 1/8" 6 Pt Dp	SA-10-3P	No. 3 Phillips S. B.
ST-626	1 1/8" 6 Pt Skt	SD-1216	1 1/8" 12 Pt Dp	SA-10-4P	No. 4 Phillips S. B.
ST-628	1 1/4" 6 Pt Skt	SD-1218	1 1/4" 12 Pt Dp	SA-10-2S	.040 Slot S. B.
ST-630	1 1/2" 6 Pt Skt	SD-1220	1 1/2" 12 Pt Dp	SA-10-3S	.045 Slot S. B.
ST-632	1 5/8" 6 Pt Skt	SD-1222	1 5/8" 12 Pt Dp	SA-10-4S	.055 Slot S. B.
ST-1212	3/8" 12 Pt Skt	SD-1224	1 3/4" 12 Pt Dp	SU-1216	1/2" Univ. Skt
ST-1214	7/16" 12 Pt Skt	SD-1226	1 7/8" 12 Pt Dp	SU-1218	9/16" Univ. Skt
ST-1216	1/2" 12 Pt Skt	SD-1228	1 5/8" 12 Pt Dp	SU-1220	5/8" Univ. Skt
ST-1218	9/16" 12 Pt Skt	SD-1230	1 3/4" 12 Pt Dp	SU-1222	1 1/16" Univ. Skt
ST-1220	5/8" 12 Pt Skt	SD-1232	1 7/8" 12 Pt Dp	SU-1224	1 3/8" Univ. Skt
ST-1222	1 1/16" 12 Pt Skt	SD-1234	1 5/8" 12 Pt Dp	S-15A	Speeder
ST-1224	1 3/16" 12 Pt Skt	SD-1236	1 3/4" 12 Pt Dp	S-20A	Sliding Tee
ST-1226	1 1/8" 12 Pt Skt	ST-812	3/8" 8 Pt Skt	S-41A	Flex Handle
ST-1228	1 1/4" 12 Pt Skt	ST-814	7/16" 8 Pt Skt	S-52	11 1/4" Ratchet
ST-1230	1 1/2" 12 Pt Skt	ST-816	1/2" 8 Pt Skt	S-53	15" Ratchet
ST-1232	1 5/8" 12 Pt Skt	ST-818	9/16" 8 Pt Skt	S-55A	Ratchet Adapt
ST-1234	1 3/4" 12 Pt Skt	ST-820	5/8" 8 Pt Skt	S-60D	Stud Remover
ST-1236	1 7/8" 12 Pt Skt	ST-822	1 1/16" 8 Pt Skt	S-70	Reht Spinner
ST-1240	2" 12 Pt Skt	ST-824	3/4" 8 Pt Skt	S-102P	2 1/2" Ext'n
SD-616	1 1/8" 6 Pt Dp	ST-826	13/16" 8 Pt Skt	S-110P	5 1/2" Ext'n
SD-618	9/16" 6 Pt Dp	ST-828	7/8" 8 Pt Skt	S-115P	10 1/2" Ext'n
SD-620	5/8" 6 Pt Dp	ST-832	1" 8 Pt Skt	S-140A	Universal Jt
SD-622	1 1/16" 6 Pt Dp	SA-8	1/4" Hex Bit Skt		

3/4"

3/4 Inch SQUARE DRIVE HEAVY DUTY SUPERSOCKET® WRENCHES

SELECTED ALLOY STEEL

2 ALLOY SOCKETS AND SETS



DETAILED PRODUCT INFORMATION IS LISTED
IN TECHNICAL BULLETIN TB-122

FEDERAL SPEC: GGG-W-641E

Example of Order Nomenclature: "H-51 RATCHET"

No.	PIECE	Wgt. Ea.
H-A1	Handle with Knurled Grip, 20" long, for H-51A Head	4.3
H-A2	Plain Handle, 20" long, for H-51A Ratchet Head..	2.9
H-20A	Sliding T Handle—17-1/2" long.....	2.7
H-41A	Flex Handle—20" long; flexible head, knurled grip	4.1
H-50	Ratchet—18-1/2" long; with Connector H-150....	5.3
H-50A	Ratchet—18-1/2" long; without plug connector....	5.1
H-51	Reversible Ratchet—19" long, 24 gear teeth instead of usual 16. Shifter reverses action instantly.	5.4
H-51A	Rev. Ratchet Head, 6-1/4", mech. same as H-51...	3.5
H-51A1	Rev. Ratchet Head with Knurled Handle, 24-1/2" ..	7.8

No.	PIECE	Wgt. Ea.
H-51A2	Rev. Ratchet Head with Plain Handle, 24-1/2"	6.4
H-55	Ratchet Adapter—41 Teeth 3-7/8" long; outside diameter 2 3/4". Knurled shifter reverses action instantly.	3.0
H-104	Extension Bar—4" long.....	.88
H-110	Extension Bar—8" long.....	1.5
H-115	Extension Bar—15-1/2" long.....	2.8
HNX-130	Adapter, 3/4" square female and 1" square male. . .	1.7
HNX-131	Adapter, 3/4" square male and 1" square female. . .	1.1
H-140A	Universal Joint—range approx. 140°.....	1.2
H-150	Ratchet Plug Connector.....	.27
HX-151	Adapter, 3/4" square male and 1" square male. ....	.44

FOR INDUSTRIAL FINISH RATCHETS AND DRIVERS SEE PAGE 84.

3/4 Inch SQUARE DRIVE HEAVY DUTY SUPERSOCKET® SETS

SELECTED ALLOY STEEL

3/4"

REGULAR 12-POINT SOCKETS

FEDERAL SPEC: GGG-W-641E, TYPE II, CLASS 2, STYLE A



H-1224 - H-1230



H-1231 - H-1236



H-1238 - H-1276

Opening	No.	Nose Diam.	Depth Opng.	Length	Wgt. Lbs.
3/4	H-1224	1- 1/8	9/16	2	.43
13/16	H-1226	1- 7/32	5/8	2	.45
7/8	H-1228	1- 5/16	21/32	2	.49
15/16	H-1230	1- 3/8	21/32	2	.50
1	H-1231	1-27/64	11/16	2- 1/16	.52
1	H-1232	1-29/64	3/4	2- 1/16	.50
1- 1/16	H-1234	1-33/64	3/4	2- 1/8	.55
1- 1/8	H-1236	1-37/64	13/16	2- 3/16	.63
1- 3/16	H-1238	1-11/16	13/16	2- 1/4	.73
1- 1/4	H-1240	1- 3/4	7/8	2- 1/4	.75
1- 5/16	H-1242	1-13/16	15/16	2- 5/16	.79
1- 3/8	H-1244	1- 7/8	1	2- 3/8	.85
1- 7/16	H-1246	1-15/16	1- 1/16	2- 7/16	.94
1- 1/2	H-1248	2- 1/16	1- 1/8	2- 1/2	1.1
1- 9/16	H-1250	2- 1/8	1- 5/32	2- 9/16	1.1
1- 5/8	H-1252	2- 3/16	1- 3/16	2- 5/8	1.2
1-11/16	H-1254	2- 5/16	1- 7/32	2- 3/4	1.4
1- 3/4	H-1256	2- 3/8	1- 1/4	2-13/16	1.4
1-13/16	H-1258	2- 1/2	1- 9/32	2-13/16	1.8
1- 7/8	H-1260	2- 5/8	1-11/32	2-29/32	1.9
2	H-1264	2-23/32	1-13/32	3	2.2
2- 1/16	H-1266	2-13/16	1- 7/16	3- 1/8	2.5
2- 1/8	H-1268	2-27/32	1- 1/2	3- 1/4	2.6
2- 3/16	H-1270	2-57/64	1-17/32	3- 3/8	2.8
2- 1/4	H-1272	2-31/32	1- 9/16	3- 1/2	3.
2- 5/16	H-1274	3- 1/8	1- 9/16	3- 1/2	3.1
2- 3/8	H-1276	3- 1/2	1- 5/8	3- 5/8	3.3

EXTRA DEEP 6-POINT SOCKETS

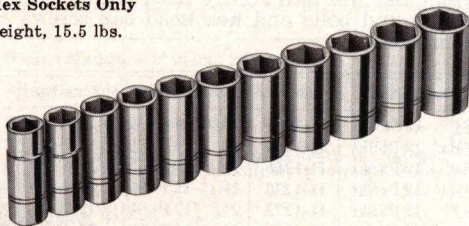
Designed for heavy service. 6-point openings are excellent for use on worn or rounded nuts.



Opening	No.	Nose Diam.	Depth Opng.	Length	Wgt. Lbs.
7/8	HD-628	1- 5/16	23/32	3-1/2	.80
15/16	HD-630	1- 3/8	7/8	3-1/2	.81
1	HD-632	1-27/64	13/16	3-1/2	.83
1- 1/16	HD-634	1-35/64	1	3-1/2	.98
1- 1/8	HD-636	1-39/64	27/32	3-1/2	1.1
1- 1/4	HD-640	1-47/64	1- 3/16	3-1/2	1.3
1- 5/16	HD-642	1-55/64	15/16	3-1/2	1.4
1- 3/8	HD-644	1-59/64	1	3-1/2	1.5
1- 7/16	HD-646	1-63/64	1- 5/16	3-1/2	1.6
1- 1/2	HD-648	2- 3/64	1- 1/8	3-1/2	1.8
1- 5/8	HD-652	2-15/64	1- 3/16	3-1/2	2.

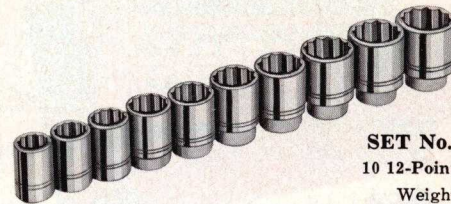
SET No. WSH-11HT

11 Deep Hex Sockets Only
Total Weight, 15.5 lbs.



Here's a full range of deep sockets from 7/8" to 1- 5/8".

One Ea.	Description	One Ea.	Description	One Ea.	Description
HD-628	7/8" 6 Pt Dp	HD-636	1 1/8" 6 Pt Dp	HD-646	1 1/8" 6 Pt Dp
HD-630	15/16" 6 Pt Dp	HD-640	1 1/4" 6 Pt Dp	HD-648	1 1/2" 6 Pt Dp
HD-632	1" 6 Pt Dp	HD-642	1 1/8" 6 Pt Dp	HD-652	1 3/8" 6 Pt Dp
HD-634	1 1/16" 6 Pt Dp	HD-644	1 3/8" 6 Pt Dp	.....	.....



SET No. WSH-10T
10 12-Point Sockets Only
Weight, 10.5 lbs.

Where a basic 3/4" drive socket set is needed, these openings provide needed coverage.

One Ea.	Description	One Ea.	Description	One Ea.	Description
H-1232	1" 12 Pt Skt	H-1242	1 1/8" 12 Pt Skt	H-1254	1 1/8" 12 Pt Skt
H-1234	1 1/16" 12 Pt Skt	H-1246	1 1/8" 12 Pt Skt	H-1258	1 3/8" 12 Pt Skt
H-1236	1 1/8" 12 Pt Skt	H-1248	1 1/2" 12 Pt Skt	.....	.....
H-1240	1 1/4" 12 Pt Skt	H-1252	1 3/8" 12 Pt Skt	.....	.....



SET No. WSH-20T
20 12-Point Sockets Only
Weight, 29.5 lbs.

This popular assortment of sockets covers a wide range of popular openings.

One Ea.	Description	One Ea.	Description	One Ea.	Description
H-1224	3/4" 12 Pt Skt	H-1240	1 1/4" 12 Pt Skt	H-1260	1 7/8" 12 Pt Skt
H-1226	13/16" 12 Pt Skt	H-1242	1 1/8" 12 Pt Skt	H-1264	2" 12 Pt Skt
H-1228	7/8" 12 Pt Skt	H-1246	1 1/8" 12 Pt Skt	H-1266	2 1/4" 12 Pt Skt
H-1230	15/16" 12 Pt Skt	H-1248	1 1/2" 12 Pt Skt	H-1270	2 3/8" 12 Pt Skt
H-1232	1" 12 Pt Skt	H-1252	1 3/8" 12 Pt Skt	H-1272	2 1/2" 12 Pt Skt
H-1234	1 1/16" 12 Pt Skt	H-1254	1 1/8" 12 Pt Skt	H-1276	2 3/8" 12 Pt Skt
H-1236	1 1/8" 12 Pt Skt	H-1258	1 3/8" 12 Pt Skt	.....	.....



No. HPA-51
RATCHET REPAIR KIT
For H-51 and H-51A
Ratchets
Weight, 8 lbs.

In addition to parts listed below, kit contains complete repair instructions.

Replacement parts are also sold separately.

No.	Qty.	Description	No.	Qty.	Description	No.	Qty.	Description
H-51-1	2	Ring (Gland)	H-51-4	6	Bearing Pin	H-51-7	6	Shifter Pin
H-51-2	6	Ratchet Gear	H-51-5	6	Spring	H-51-8	6	Plunger (Ball)
H-51-3	6	Dog (Pawl)	H-51-6	2	Shifter Bolt	H-51W	1	Spanner

No. H-41RK FLEX HANDLE REPAIR KIT

Total Weight, .39 lbs.

For fast efficient repair of H-41A Flex Handle. Complete instructions included with kit.

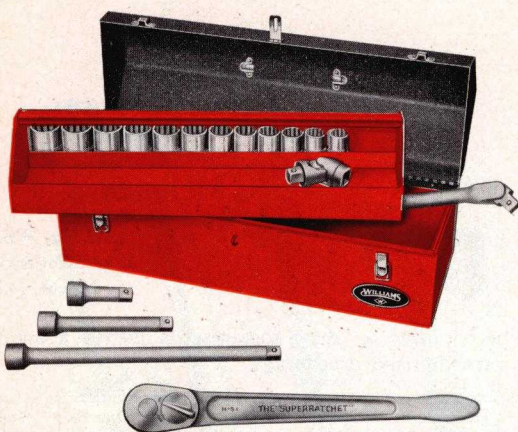


No.	Qty.	Description
H-41A-1	1	Drive Tang
H-41A-2	1	Spring
H-41A-3	1	Hinge Pin

3/4"**3/4 Inch SQUARE DRIVE HEAVY DUTY SUPERSOCKET® SETS**

SELECTED ALLOY STEEL

2 ALLOY SOCKETS AND SETS

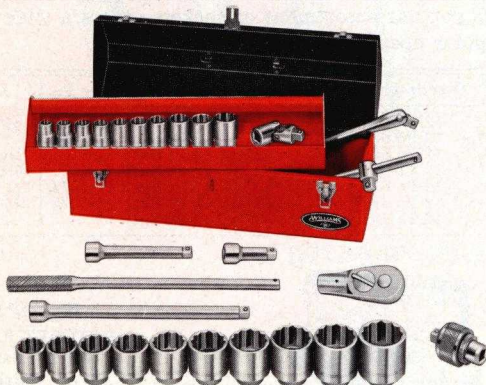


SET No. WSH-3B
18 Tools in TB-9T Metal Tool Box
23-1/4" x 7-1/2" x 9-1/4"
Total Weight, 45.3 lbs.

SET No. WSH-3BT
18 Tools Only
Total Weight, 30.7 lbs.

A basic set with sockets to fit all old and new regular and heavy series nuts and bolts 5/8" thru 1 1/4" diam. and all finished series nuts and bolts and hex head cap screws 3/4" thru 1 1/4". Tool box has extra room for additional sockets and accessories.

One Ea.	Description	One Ea.	Description	One Ea.	Description
H-1232	1" 12 Pt Skt	H-1248	1 1/2" 12 Pt Skt	H-41A	Flex Handle
H-1234	1 1/16" 12 Pt Skt	H-1252	1 5/8" 12 Pt Skt	H-51	Ratchet
H-1236	1 1/8" 12 Pt Skt	H-1254	1 11/16" 12 Pt Skt	H-104	4" Ext'n
H-1240	1 1/4" 12 Pt Skt	H-1258	1 3/4" 12 Pt Skt	H-110	8" Ext'n
H-1242	1 1/2" 12 Pt Skt	H-1260	1 7/8" 12 Pt Skt	H-115	15 1/2" Ext'n
H-1246	1 3/4" 12 Pt Skt	H-1264	2" 12 Pt Skt	H-140A	Universal Jt



SET No. WSH-4C
29 Tools in TB-9T Metal Tool Box
23-1/4" x 7-1/2" x 9-1/4"
Total Weight, 65.8 lbs.

SET No. WSH-4CT
29 Tools Only
Total Weight, 51.2 lbs.

A master range of socket sizes to fit all new and old heavy series nuts and bolts 7/16" thru 1 1/2" diam. and most regular and finished series nuts and bolts and hex head cap screws 1/2" thru 1 1/2" diam.

One Ea.	Description	One Ea.	Description	One Ea.	Description
H-1224	3/4" 12 Pt Skt	H-1248	1 1/2" 12 Pt Skt	H-A1	Handle
H-1226	13/16" 12 Pt Skt	H-1252	1 5/8" 12 Pt Skt	H-20A	Sliding Tee
H-1228	7/8" 12 Pt Skt	H-1254	1 11/16" 12 Pt Skt	H-41A	Flex Handle
H-1230	15/16" 12 Pt Skt	H-1258	1 3/4" 12 Pt Skt	H-51A	Ratchet
H-1232	1" 12 Pt Skt	H-1260	1 7/8" 12 Pt Skt	H-55	Ratchet Adpt.
H-1234	1 1/16" 12 Pt Skt	H-1264	2" 12 Pt Skt	H-104	4" Ext'n
H-1236	1 1/8" 12 Pt Skt	H-1266	2 1/16" 12 Pt Skt	H-110	8" Ext'n
H-1240	1 1/4" 12 Pt Skt	H-1270	2 3/16" 12 Pt Skt	H-115	15 1/2" Ext'n
H-1242	1 1/2" 12 Pt Skt	H-1272	2 1/4" 12 Pt Skt	H-140A	Universal Jt
H-1246	1 3/4" 12 Pt Skt	H-1276	2 3/8" 12 Pt Skt		



SET No. WSH-2B
13 Tools in TB-10 Metal Tool Box
20-3/4" x 5-1/4" x 4-1/4"
Total Weight, 26 lbs.

SET No. WSH-2BT
13 Tools Only
Total Weight, 17.3 lbs.

Sockets fit all new and old regular and heavy series hex nuts and bolts 5/8" thru 1 1/8" diam. and all finished series hex nuts and bolts and hex head cap screws 3/4" thru 1 1/8" diam.

One Ea.	Description	One Ea.	Description	One Ea.	Description
H-1232	1" 12 Pt Skt	H-1246	1 1/16" 12 Pt Skt	H-51	Ratchet
H-1234	1 1/16" 12 Pt Skt	H-1248	1 1/8" 12 Pt Skt	H-104	4" Ext'n
H-1236	1 1/8" 12 Pt Skt	H-1252	1 5/8" 12 Pt Skt	H-110	8" Ext'n
H-1240	1 1/4" 12 Pt Skt	H-1254	1 11/16" 12 Pt Skt		
H-1242	1 1/2" 12 Pt Skt	H-1258	1 3/4" 12 Pt Skt		



SET No. WSH-5A
40 Tools in TB-12 Metal Tool Box
30-1/4" x 11-1/2" x 4-3/4"
Total Weight, 91.7 lbs.

SET No. WSH-5AT
40 Tools Only
Total Weight, 65.3 lbs.

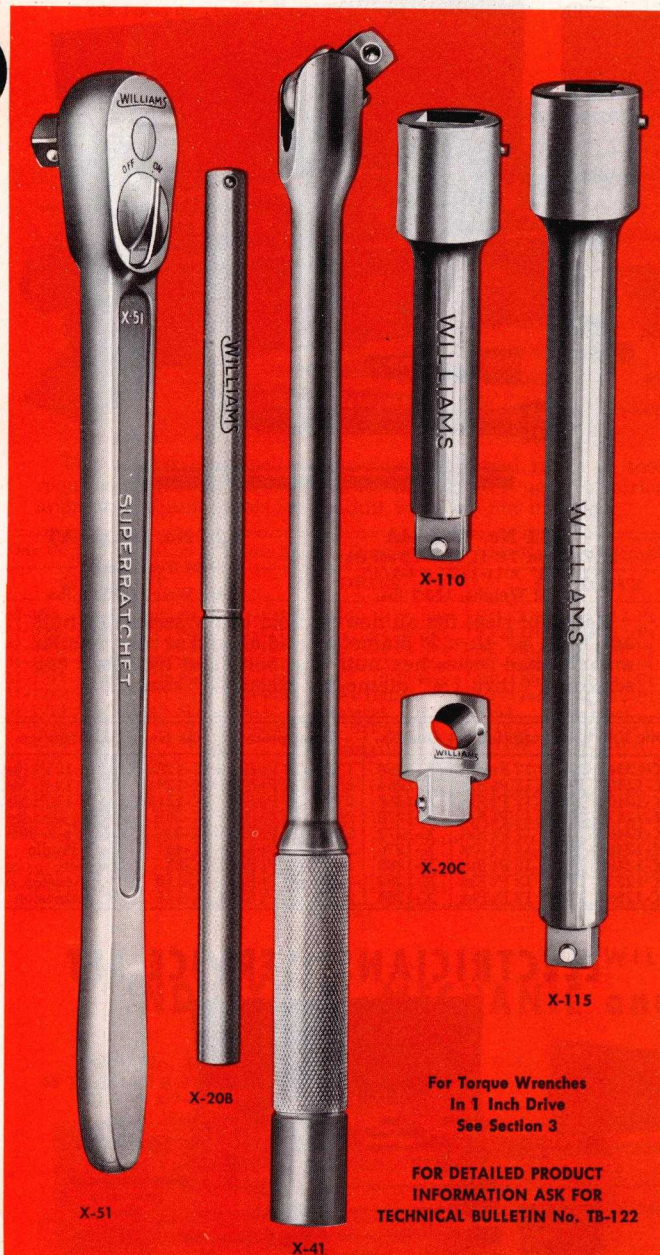
Here is a full complement of regular length and extra deep sockets and drive attachments to solve all new and old series nut and bolt turning problems from 7/16" thru 1 1/2" diameters. Set will also service most regular and finished series nuts and bolts and hex head cap screws 1/2" thru 1 1/2" diameters.

One Ea.	Description	One Ea.	Description	One Ea.	Description
H-1224	3/4" 12 Pt Skt	H-1260	1 7/8" 12 Pt Skt	HD-646	1 1/16" 6 Pt Dp
H-1226	13/16" 12 Pt Skt	H-1264	2" 12 Pt Skt	HD-648	1 1/8" 6 Pt Dp
H-1228	7/8" 12 Pt Skt	H-1266	2 1/16" 12 Pt Skt	HD-652	1 5/8" 6 Pt Dp
H-1230	15/16" 12 Pt Skt	H-1270	2 3/16" 12 Pt Skt	H-A1	Handle
H-1232	1" 12 Pt Skt	H-1272	2 1/4" 12 Pt Skt	H-20A	Sliding Tee
H-1234	1 1/16" 12 Pt Skt	H-1276	2 3/8" 12 Pt Skt	H-41A	Flex Handle
H-1236	1 1/8" 12 Pt Skt	HD-628	7/8" 6 Pt Dp	H-51A	Ratchet
H-1240	1 1/4" 12 Pt Skt	HD-630	15/16" 6 Pt Dp	H-55	Ratchet Adpt.
H-1242	1 1/2" 12 Pt Skt	HD-632	1" 6 Pt Dp	H-104	4" Ext'n
H-1246	1 3/4" 12 Pt Skt	HD-634	1 1/16" 6 Pt Dp	H-110	8" Ext'n
H-1248	1 5/8" 12 Pt Skt	HD-636	1 1/8" 6 Pt Dp	H-115	15 1/2" Ext'n
H-1252	1 5/8" 12 Pt Skt	HD-640	1 1/4" 6 Pt Dp	H-140A	Universal Jt
H-1254	1 11/16" 12 Pt Skt	HD-642	1 3/16" 6 Pt Dp		
H-1258	1 3/4" 12 Pt Skt	HD-644	1 3/8" 6 Pt Dp		

1"

1 Inch SQUARE DRIVE EXTRA HEAVY DUTY SUPERSOCKET® WRENCHES

SELECTED ALLOY STEEL



For Torque Wrenches
In 1 Inch Drive
See Section 3

FOR DETAILED PRODUCT
INFORMATION ASK FOR
TECHNICAL BULLETIN No. TB-122

Example of Order Nomenclature: "X-51 RATCHET"

FEDERAL SPEC: GGG-W-641E

No.	PIECE	Wgt. Ea.
X-20B	Sliding Handle—1" diam., 20" long	4.4
X-20C	Adapter—for Sliding Handle X-20B	1.4
X-41	Flex Handle 27" long; flexible head, knurled grip	9.3
X-51	Reversible Ratchet—25" long, 24 teeth in Ratchet gear instead of usual 16. Shift lever reverses action instantly	11.5
X-110	Extension Bar—9" long	3.7
X-115	Extension Bar—18" long	7.1

X-51 RATCHET REPAIR PARTS

No.	Description	No.	Description
X-51-1	Ring (Gland)	X-51-6	Shifter Bolt
X-51-2	Ratchet Gear	X-51-7	Shifter Bolt Pin
X-51-3	Dog (Pawl)	X-51-8	Plunger (Ball)
X-51-4	Bearing Pin	X-51W	Spanner
X-51-5	Spring (Plunger)		

See Page 129 for ANSI Square and Hexagon Bolts and Nuts, as related to nominal wrench openings.



X-1234 - X-1240

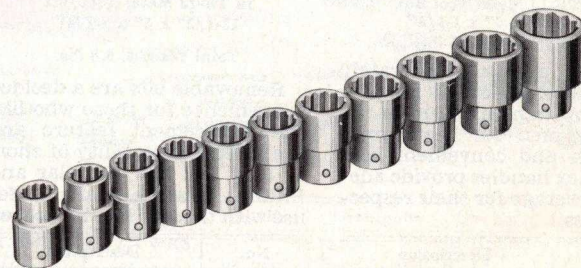


X-1244 - X-12100

Will rotate nuts completely where the handle can be swung only 30°. Another feature is the "Lock-Socket" device which provides a positive lock between the sockets and attachments. To release the "Lock-Socket" simply press the button on the socket and pull. Made from Selected Alloy Steel, heat-treated, chrome-plated.

FEDERAL SPEC: GGG-W-641E, TYPE II, CLASS 2, STYLE A

Opening	No.	Nose Diam.	Depth Opng.	Length	Wgt. Ea.
1- 1/16	X-1234	1-5/8	27/32	2-23/32	1.1
1- 1/8	X-1236	1-3/4	27/32	2-13/16	1.2
1- 1/4	X-1240	1-7/8	7/8	2- 7/8	1.2
1- 5/16	X-1242	2	15/16	2- 7/8	1.3
1- 3/8	X-1244	2-1/16	29/32	2-15/16	1.3
1- 7/16	X-1246	2-1/8	1- 1/16	2-15/16	1.3
1- 1/2	X-1248	2-1/4	1- 1/8	3	1.4
1- 5/8	X-1252	2-3/8	1- 3/16	3- 1/16	1.9
1-13/16	X-1258	2-5/8	1- 9/32	3- 1/4	2.1
1- 7/8	X-1260	2-3/4	1-11/32	3- 3/8	2.3
2	X-1264	2-7/8	1- 7/16	3- 1/2	2.4
2- 1/8	X-1268	3	1- 1/2	3- 5/8	3.
2- 3/16	X-1270	3-1/8	1-17/32	3- 3/4	3.
2- 1/4	X-1272	3-1/4	1- 9/16	3- 7/8	3.3
2- 3/8	X-1276	3-3/8	1- 5/8	4	3.6
2- 1/2	X-1280	3-3/8	1-11/16	4	3.2
2- 9/16	X-1282	3-9/16	1-29/32	4	5.4
2- 5/8	X-1284	3-3/4	1-29/32	4	6.3
2- 3/4	X-1288	3-7/8	2- 1/16	4- 1/4	6.7
2-15/16	X-1294	4-1/8	2- 1/16	4- 1/4	7.2
3- 1/8	X-12100	4-5/16	2- 5/16	4- 1/2	8.3



SET No. WSX-2T

11 12-Pt. Sockets

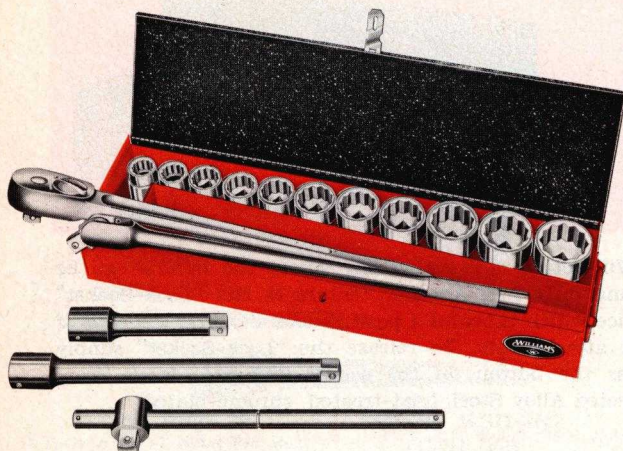
Total Weight, 20.5 lbs.

One Ea.	Description	One Ea.	Description	One Ea.	Description
X-1234	1 1/16" 12 Pt. Skt	X-1246	1 1/8" 12 Pt. Skt	X-1264	2" 12 Pt. Skt
X-1236	1 1/8" 12 Pt. Skt	X-1248	1 1/2" 12 Pt. Skt	X-1270	2 1/16" 12 Pt. Skt
X-1240	1 1/4" 12 Pt. Skt	X-1252	1 5/8" 12 Pt. Skt	X-1276	2 3/8" 12 Pt. Skt
X-1242	1 5/16" 12 Pt. Skt	X-1258	1 3/4" 12 Pt. Skt		

1 Inch SQ. DRIVE SUPERSOCKET® SETS

SELECTED ALLOY STEEL

2 ALLOY SOCKETS AND SETS



SET No. WSX-1A

17 Tools in TB-11 Metal Tool Box
29-1/4" x 8" x 4-1/4"
Total Weight, 76 lbs.

With socket openings from 1 1/16" thru 2 3/8" this set fits all new and old heavy series hex nuts and bolts 5/8" thru 1 1/2" diameters and all regular and finished series hex nuts and bolts and hex head cap screws (old or new) 3/4" thru 1 1/2" diameters except 1/8" sizes. Ratchet and other drive parts are ruggedly built for heavy duty work.

SET No. WSX-1AT

17 Tools Only
Total Weight, 59.3 lbs.



SET No. WSX-4A

27 Tools in TB-12 Metal Tool Box
30-1/4" x 11-1/2" x 4-3/4"
Total Weight, 133.2 lbs.

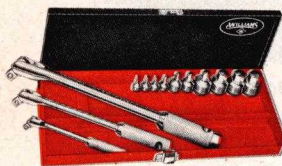
Range of sizes fits all new and old heavy series hex nuts and bolts 5/8" thru 2" diameters and all, old or new, regular and finished series hex nuts and bolts and hex head cap screws 3/4" thru 1 3/4" diameters except 1/8" sizes.

SET No. WSX-4AT

27 Tools Only
Total Weight, 106.8 lbs.

One Ea.	Description	One Ea.	Description	One Ea.	Description
X-1234	1 1/16" 12 Pt Skt	X-1252	1 5/8" 12 Pt Skt	X-20C	Adapter
X-1236	1 1/8" 12 Pt Skt	X-1258	1 13/16" 12 Pt Skt	X-41	Flex Handle
X-1240	1 1/4" 12 Pt Skt	X-1264	2" 12 Pt Skt	X-51	Ratchet
X-1242	1 1/2" 12 Pt Skt	X-1270	2 1/16" 12 Pt Skt	X-110	9" Extension
X-1246	1 3/8" 12 Pt Skt	X-1276	2 3/8" 12 Pt Skt	X-115	18" Extension
X-1248	1 1/2" 12 Pt Skt	X-20B	Sliding Handle		

One Ea.	Description	One Ea.	Description	One Ea.	Description
X-1234	1 1/16" 12 Pt Skt	X-1260	1 7/8" 12 Pt Skt	X-1288	2 3/4" 12 Pt Skt
X-1236	1 1/8" 12 Pt Skt	X-1264	2" 12 Pt Skt	X-1294	2 15/16" 12 Pt Skt
X-1240	1 1/4" 12 Pt Skt	X-1268	2 1/8" 12 Pt Skt	X-12100	3 1/8" 12 Pt Skt
X-1242	1 1/2" 12 Pt Skt	X-1270	2 1/16" 12 Pt Skt	X-20B	Sliding Handle
X-1244	1 3/8" 12 Pt Skt	X-1272	2 1/4" 12 Pt Skt	X-20C	Adapt'r-X-20B
X-1246	1 3/8" 12 Pt Skt	X-1276	2 3/8" 12 Pt Skt	X-41	Flex Handle
X-1248	1 1/2" 12 Pt Skt	X-1280	2 1/2" 12 Pt Skt	X-51	Ratchet
X-1252	1 5/8" 12 Pt Skt	X-1282	2 3/8" 12 Pt Skt	X-110	9" Extension
X-1258	1 13/16" 12 Pt Skt	X-1284	2 5/8" 12 Pt Skt	X-115	18" Extension

WILLIAMS
HEX BIT SOCKET SETS

SET No. WSC-112A

13 Tools
in TB-13 Metal Tool Box
12-1/2" x 5" x 1-1/4"
Total Weight, 5 lbs.

These one-piece, accurately formed hex bit sockets are preferred by many machinists, die and jig men for their great strength and convenient size. Three flex handles provide adequate leverage for their respective sizes.

No.	Description
M-42A	1/4" Dr. Flex Handle
B-40A	3/8" Dr. Flex Handle
S-40A	1/2" Dr. Flex Handle
AM-604	1/8" Hex Bit, 1/4 Dr.
AM-605	3/32" Hex Bit, 1/4 Dr.
AM-606	1/16" Hex Bit, 1/4 Dr.
AM-607	3/32" Hex Bit, 1/4 Dr.
AB-608	1/4" Hex Bit, 3/8 Dr.
AB-610	1/2" Hex Bit, 3/8 Dr.
AS-612	3/8" Hex Bit, 1/2 Dr.
AS-616	1/2" Hex Bit, 1/2 Dr.
AS-618	5/8" Hex Bit, 1/2 Dr.
AS-620	3/4" Hex Bit, 1/2 Dr.



SET No. WSC-112B

13 Tools
in TB-13 Metal Tool Box
12-1/2" x 5" x 1-1/4"
Total Weight, 6.8 lbs.

Removable bits are a decided convenience for those who like the replacement feature and the interchangeability of short or long hex bits. Regular and Phillips bits are available for use with the 5/16" hex bit socket.

No.	Description
M-42A	1/4" Dr. Flex Handle
B-40A	3/8" Dr. Flex Handle
S-40A	1/2" Dr. Flex Handle
MA-4	1/8" Hex Bit, 1/4 Dr.
MA-5	3/32" Hex Bit, 1/4 Dr.
MA-6	1/16" Hex Bit, 1/4 Dr.
MA-7	3/32" Hex Bit, 1/4 Dr.
BA-8	1/4" Hex Bit, 3/8 Dr.
BA-10	1/2" Hex Bit, 3/8 Dr.
SA-12	3/8" Hex Bit, 1/2 Dr.
SA-16	1/2" Hex Bit, 1/2 Dr.
SA-18	5/8" Hex Bit, 1/2 Dr.
SA-20	3/4" Hex Bit, 1/2 Dr.

ELECTRICIANS' SERVICE SET



SET No. WSC-1C

56 Tools in TB-7 Metal Tool Box
23" x 7-3/4" x 2-1/4"
Total Weight, 16.5 lbs.

SET No. WSC-1CT

56 Tools Only
Total Weight, 10.1 lbs.

One Ea.	Description	One Ea.	Description	One Ea.	Description
1/4" DRIVE		3/8" DRIVE		PLIERS	
M-605	5/16" 6 Pt Skt	B-1216	1/2" 12 Pt Skt	PL-208	8" Lineman's
M-606	3/8" 6 Pt Skt	B-1218	5/16" 12 Pt Skt	PL-218C	Crimper
M-608	1/2" 6 Pt Skt	B-1220	3/8" 12 Pt Skt	PL-370C	7" Slip Jt.
M-1210	1/2" 12 Pt Skt	B-1222	1/2" 12 Pt Skt	PL-1519C	5" Superjoint
M-1212	5/8" 12 Pt Skt	B-1224	3/4" 12 Pt Skt	PL-1520C	10" Superjoint
M-1214	1" 12 Pt Skt	B-40A	Flex Handle	SCREWDRIVERS	
M-1216	1 1/8" 12 Pt Skt	B-52	Ratchet	DE-52	2" Pocket
M-1218	1 1/4" 12 Pt Skt	B-108	3" Ext'n	DEG-43	3" Elect'rns
M-42A	Flex Handle	WRENCHES		DEG-46	6" Elect'rns
M-52	Ratchet	AP-6	6" Adjustable	DEG-48	8" Elect'rns
M-102	2" Ext'n.	AP-8	8" Adjustable	DEG-50	10" Elect'rns
M-106	Spinner Hdl	WS-44A	13 Hex Wrs	DPG-1	Phillips No. 1
M-140A	Universal Jt	PLIERS		DPG-2	Phillips No. 2
3/8" DRIVE		PL-46C	6" Diag Cut	DPG-3	Phillips No. 3
B-1212	3/8" 12 Pt Skt	PL-76C	6" Chn Nose	DPG-62	Phillips No. 2
B-1214	1/2" 12 Pt Skt			DSG-4	4" Sq. Blade

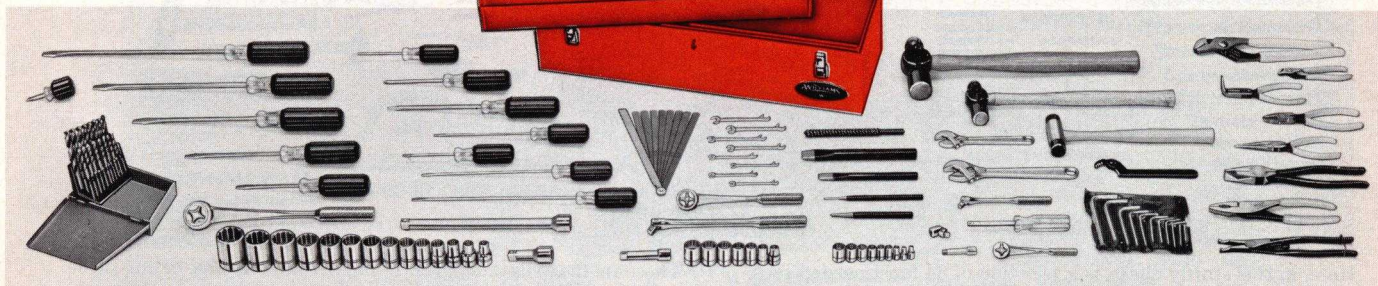
MASTER ELECTRICAL INSTALLATION and MAINTENANCE SET

SET No. WSC-2B

119 Tools in TB-8T Metal Tool Box
23-1/4" x 7-1/2" x 9-1/4"
Total Weight, 47.6 lbs.

SET No. WSC-2BT

119 Tools Only
Total Weight, 33 lbs.



This master electrical set provides the broad range of tools required for installation and maintenance of all types of electrical apparatus. Special tools for conduit work are not included.

Hip roof metal case with tote tray may be easily carried to the job with the assurance that the proper tools will be right at hand. This also makes an excellent set for bench work.

One Ea.	Description	One Ea.	Description	One Ea.	Description	One Ea.	Description	One Ea.	Description	One Ea.	Description
1/4" DRIVE		3/8" DRIVE		1/2" DRIVE		ELECTRONIC WRS		SCREWDRIVERS		CHISELS & PUNCHES	
M-605	5/32" 6 Pt Skt	B-1216	1/2" 12 Pt Skt	ST-1228	7/8" 12 Pt Skt	OEE-2224	1 1/32" x 3/8" opng	DPG-1	Phillips #1	C-16	1/2" Cold
M-606	3/16" 6 Pt Skt	B-1218	9/16" 12 Pt Skt	ST-1230	1 1/16" 12 Pt Skt	OEE-2422	3/8" x 1 1/32" opng	DPG-2	Phillips #2	C-24	3/4" Cold
M-608	1/4" 6 Pt Skt	B-1220	5/8" 12 Pt Skt	ST-1232	1" 12 Pt Skt	MISC. WRS		DPG-3	Phillips #3	P-4	1/8" Pin Pch
M-1210	1/16" 12 Pt Skt	B-1222	1 1/16" 12 Pt Skt	ST-1234	1 1/16" 12 Pt Skt	AP-6	6" Adj Wr	DPG-62	1 1/4" Phillips	P-40	Center Pch
M-1211	1 1/32" 12 Pt Skt	B-1224	3/4" 12 Pt Skt	ST-1236	1 1/8" 12 Pt Skt	AP-8	8" Adj Wr	PLIERS		HAMMERS	
M-1212	3/8" 12 Pt Skt	B-40A	Flex Handle	ST-1240	1 1/2" 12 Pt Skt	AP-8	Spanner Wr	PL-46C	6" Diag Cut	HBP-2-0	3/4 lb. Hammer
M-1214	1 1/32" 12 Pt Skt	B-52	Ratchet	S-52	Ratchet	SCREWDRIVERS		PL-76C	6" Chain Nose	HBP-4	2 lb. Hammer
M-1216	1/2" 12 Pt Skt	B-108	3" Ext'n	S-102P	2 1/2" Ext'n	DRG-24	4" Mech's	PL-126C	6" Bent Needle	HSF-10M	Medium Tip
M-1218	9/16" 12 Pt Skt	1/2" DRIVE		S-115P	10" Ext'n	DRG-26	6" Mech's	PL-208	8" Lineman's	HSF-10S	Soft Tip
M-42A	Flex Handle	ST-1212	3/8" 12 Pt Skt	ELECTRONIC WRS		DRG-28	8" Mech's	PL-218C	7 1/2" Slip Jt.	HSF-100	Hammer Body
M-52	Ratchet	ST-1214	1/2" 12 Pt Skt	OEE-1315	1 3/64" x 1 5/64" opng	DRG-30	10" Mech's	PL-370C	8" Lock Ring	MISC. TOOLS	
M-102	2" Ext'n	ST-1216	5/8" 12 Pt Skt	OEE-1416	7/32" x 1/4" opng	DRG-32	12" Mech's	PL-1515	5" Superjoint	WS-44A	13 Hex Wrs
M-106	Spinner Hdl	ST-1218	1 1/16" 12 Pt Skt	OEE-1513	1 3/64" x 1 3/64" opng	DEG-43	3" Electr's	PL-1519C	10" Superjoint	TDS-21	21 H. S. Drills
M-140A	Univesal Jt	ST-1220	5/8" 12 Pt Skt	OEE-1614	1/4" x 7/32" opng	DEG-46	6" Electr's	PL-1520C	10" Superjoint	GS-4	Feeler Gauge
3/8" DRIVE		ST-1222	1 1/16" 12 Pt Skt	OEE-1820	9/32" x 9/16" opng	DEG-48	8" Electr's			CMD-1/2	Carbide Drill
B-1212	3/8" 12 Pt Skt	ST-1224	3/4" 12 Pt Skt	OEE-2018	5/16" x 9/32" opng	DEG-50	10" Electr's				
B-1214	1/2" 12 Pt Skt	ST-1226	1 1/16" 12 Pt Skt								

WILLIAMS

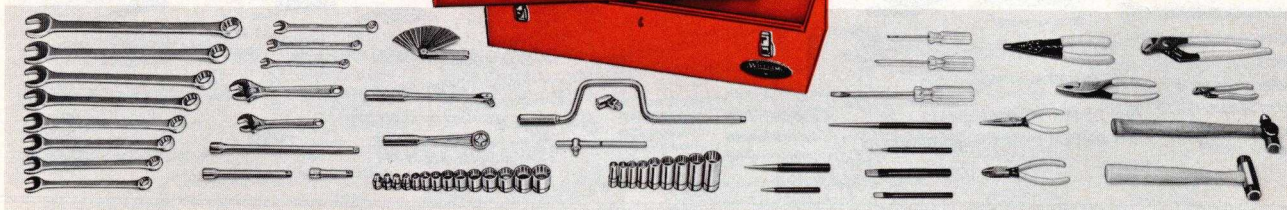
INDUSTRIAL MECHANIC and LIGHT MACHINE REPAIR SET

SET No. WSC-113A

65 Tools in TB-9T Metal Tool Box
23-1/4" x 7-1/2" x 9-1/4"
Total Weight, 35 lbs.

SET No. WSC-113AT

65 Tools Only
Total Weight, 20.5 lbs.



3/8" Drive—14 Reg. Sockets,
9 Deep Sockets, 8 Drive Parts
11 Combination Wrs.—2 Adjustable Wrs.
3 Screwdrivers—2 Chisels—4 Punches
7 Pliers—2 Hammers—1 Feeler Gauge Set

One Ea.	Description	One Ea.	Description	One Ea.	Description	One Ea.	Description	One Ea.	Description	One Ea.	Description
3/8" DRIVE		3/8" DRIVE		3/8" DRIVE		COMBINATION WRS.		PLIERS		CHISELS & PUNCHES	
B-1208	1/4" 12 Pt Skt	B-1230	1 1/16" 12 Pt Skt	B-15	Speeder	1164	5/8" x 5/8" opng	PL-76C	6" Chain Nose	C-12	3/8" Cold
B-1210	5/16" 12 Pt Skt	B-1232	1" 12 Pt Skt	B-20A	Sliding Tee	1165	1 1/16" x 1 1/16" opng	PL-126C	6" Bent Needle	C-16	1/2" Cold
B-1211	1 1/32" 12 Pt Skt	BD-1212	3/8" Deep Skt	B-40A	Flex Handle	1166	3/8" x 3/4" opng	PL-218C	Crimper	P-4	1/8" Pin
B-1212	3/8" 12 Pt Skt	BD-1214	1/2" Deep Skt	B-52	Ratchet	1167A	1 1/16" x 1 3/16" opng	PL-370C	7 1/2" Slip Jt	P-13	3/32" Solid
B-1214	1/2" 12 Pt Skt	BD-1216	5/8" Deep Skt	B-108	3" Ext'n	1167	7/8" x 7/8" opng	PL-1519C	5" Superjoint	P-25	3/32" Taper
B-1216	1/2" 12 Pt Skt	BD-1218	9/16" Deep Skt	B-110	6" Ext'n	1168	1 3/16" x 1 3/16" opng	PL-1520C	10" Superjoint	P-39	Center
B-1218	9/16" 12 Pt Skt	BD-1220	5/8" Deep Skt	B-115	10 1/2" Ext'n	1170	1" x 1" opng	SCREWDRIVERS		MISC. TOOLS	
B-1220	5/8" 12 Pt Skt	BD-1222	1 1/16" Deep Skt	B-140A	Univesal Jt	1171	1 1/16" x 1 1/16" opng	DE-43	3" Electr's	GS-1	Feeler Gauge
B-1222	1 1/16" 12 Pt Skt	BD-1224	3/4" Deep Skt	COMBINATION WRS.		AP-6	6" Adj Wr	DP-2	Phillips No. 2	HBP-3-0	8 oz. Hammer
B-1224	3/4" 12 Pt Skt	BD-1226	7/8" Deep Skt	1161	3/16" x 7/16" opng	AP-8	8" Adj Wr	DR-26	6" Rd Blade	HSF-105	Hammer Body
B-1226	1 3/16" 12 Pt Skt	BD-1228	1 1/8" Deep Skt	1162	1/2" x 1/2" opng	PLIERS				HSF-10H	Hard Tip
B-1228	7/8" 12 Pt Skt			1163	3/16" x 9/16" opng	PL-46C	6" Diag Cut			HSF-10S	Soft Tip

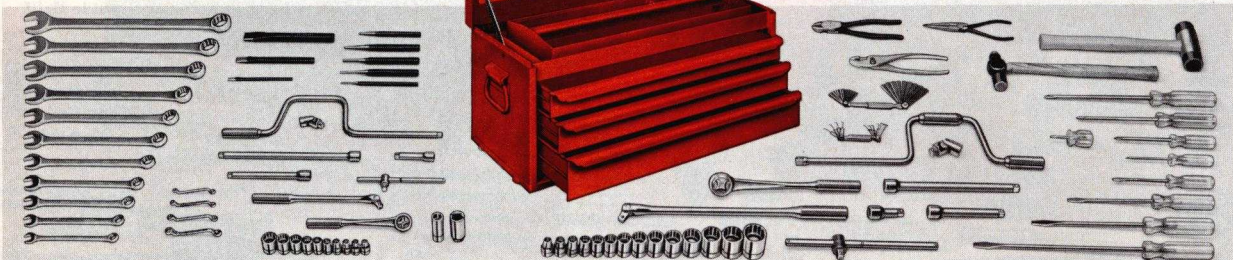
INDUSTRIAL MECHANIC'S BASIC SERVICE SET

SET No. WSC-106A

84 Tools in TB-1001 Metal Tool Chest
22-5/8" x 10-1/8" x 10"
Total Weight, 67.6 lbs.

SET No. WSC-106AT

84 Tools Only
Total Weight, 31.6 lbs.



Here, in this sturdy chest, is a selection of 84 most needed socket, driver, wrench and other tool items for the industrial mechanic.

These are the tools that cover the most common range of nut-turning problems and other types of work at a moderate investment.

One Ea.	Description	One Ea.	Description	One Ea.	Description	One Ea.	Description	One Ea.	Description	One Ea.	Description
3/8" DRIVE		3/8" DRIVE		1/2" DRIVE		COMBINATION WRS		CHISELS & PUNCHES		PLIERS	
B-1208	1/4" 12 Pt Skt	B-110	6" Ext'n	ST-1236	1 1/2" 12 Pt Skt	1166	3/4" x 3/4" opng	P-15	5/32" x 6" Solid	PL-8	8" Slip Jt
B-1210	5/16" 12 Pt Skt	B-115	10 1/2" Ext'n	ST-1240	1 1/2" 12 Pt Skt	1167A	1 1/2" x 1 1/2" opng	P-40	Center	PL-47	7" Diag. Cut.
B-1211	1 1/32" 12 Pt Skt	B-140A	Universal Jt	S-15A	Speeder	1167	7/8" x 7/8" opng	C-10	3/16" Cold	PL-77	7" Chain Nose
B-1212	3/8" 12 Pt Skt			S-20A	Sliding Tee	1168	1 1/2" x 1 1/2" opng	C-16	1/2" Cold	MISC. TOOLS	
B-1214	7/16" 12 Pt Skt			S-41A	Flex Handle	1170	1" x 1" opng	C-24	3/4" Cold	HSF-155	Hammer Body
B-1216	1/2" 12 Pt Skt			S-52	Ratchet	1171	1 1/2" x 1 1/2" opng			HSF-15H	Hard Tip
B-1218	9/16" 12 Pt Skt			S-102P	2 1/2" Ext'n			SCREWDRIVERS		HSF-15S	Soft Tip
B-1220	5/8" 12 Pt Skt			S-110P	5 1/2" Ext'n	BOX WRENCHES		DR-24	4" Rd. Blade	HBP-2-0	3/4 lb. Hammer
B-1222	1 1/16" 12 Pt Skt			S-115P	10" Ext'n	1150	3/16" x 1 1/4" "	DR-26	6" Rd. Blade	GS-3	Feeler Gauge Set
B-1224	3/4" 12 Pt Skt			S-140A	Universal Jt	1151	7/32" x 1 1/4" "	DR-28	8" Rd. Blade	GS-7	Feeler Gauge Set
BD-620P	5/8" S. P. Skt					1152	1/4" x 9/32" "	DR-30	10" Rd. Blade		
BD-626P	3/4" S. P. Skt			COMBINATION WRS		1153	3/16" x 1 1/2" "	DR-32	12" Rd. Blade		
B-15	Speeder			1161	7/16" x 7/16" opng	CHISELS & PUNCHES		DP-1	Phillips #1		
B-20A	Sliding Tee			1162	1 1/2" x 1 1/2" opng	P-4	1/8" x 6" Pin	DP-2	Phillips #2		
B-40A	Flex Handle			1163	9/16" x 9/16" opng	P-6	3/16" x 6" Pin	DP-3	Phillips #3		
B-52	Ratchet			1164	5/8" x 5/8" opng	P-8	1/4" x 6" Pin	DP-4	Phillips #4		
B-108	3" Ext'n			1165	1 1/16" x 1 1/16" opng			DP-62	Phillips #2		

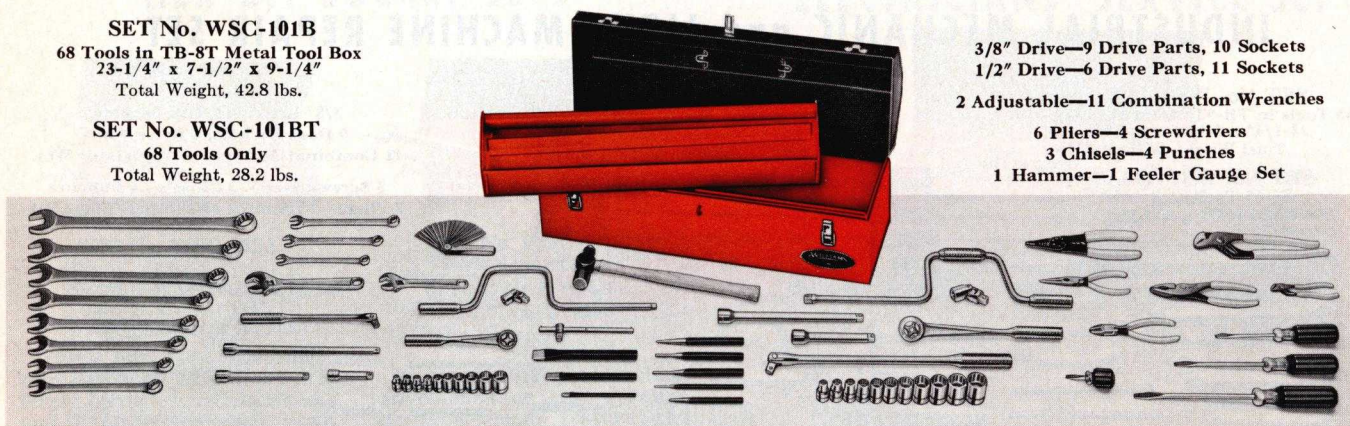
WILLIAMS GENERAL SERVICE SET

SET No. WSC-101B

68 Tools in TB-8T Metal Tool Box
23-1/4" x 7-1/2" x 9-1/4"
Total Weight, 42.8 lbs.

SET No. WSC-101BT

68 Tools Only
Total Weight, 28.2 lbs.



3/8" Drive—9 Drive Parts, 10 Sockets
1/2" Drive—6 Drive Parts, 11 Sockets

2 Adjustable—11 Combination Wrenches

6 Pliers—4 Screwdrivers
3 Chisels—4 Punches

1 Hammer—1 Feeler Gauge Set

One Ea.	Description	One Ea.	Description	One Ea.	Description	One Ea.	Description	One Ea.	Description	One Ea.	Description
3/8" DRIVE		3/8" DRIVE		1/2" DRIVE		COMBINATION WRS		PLIERS		CHISELS & PUNCHES	
B-1208	1/4" 12 Pt Skt	B-108	3" Ext'n	ST-1228	7/8" 12 Pt Skt	1164	5/8" x 5/8" opng	PL-46C	6" Diag Cut	C-16	1/2" Cold
B-1210	5/16" 12 Pt Skt	B-110	6" Ext'n	ST-1230	1 1/16" 12 Pt Skt	1165	1 1/16" x 1 1/16" opng	PL-76C	6" Chain Nose	C-24	3/4" Cold
B-1211	1 1/32" 12 Pt Skt	B-115	10 1/2" Ext'n	ST-1232	1" 12 Pt Skt	1166	3/4" x 3/4" opng	PL-218C	Crimper	SCREWDRIVERS	
B-1212	3/8" 12 Pt Skt	B-140A	Universal Jt	S-15A	Speeder	1167A	1 1/2" x 1 1/2" opng	PL-370C	7 1/2" Slip Jt	DSG-4	4" Cush Grip
B-1214	7/16" 12 Pt Skt			S-41A	Flex Handle	1167	7/8" x 7/8" opng	PL-1519C	5" Superjoint	DSG-6	6" Cush Grip
B-1216	1/2" 12 Pt Skt			S-52	Ratchet	1168	1 1/2" x 1 1/2" opng	PL-1520C	10" Superjoint	DSG-8	8" Cush Grip
B-1218	9/16" 12 Pt Skt			S-110P	5 1/2" Ext'n	1170	1" x 1" opng	CHISELS & PUNCHES		DSG-62	1 1/4" Cush Grip
B-1220	5/8" 12 Pt Skt			S-115P	10" Ext'n	1171	1 1/2" x 1 1/2" opng	P-4	1/8" x 6" Pin	MISC. TOOLS	
B-1222	1 1/16" 12 Pt Skt			S-140A	Universal Jt			P-6	3/16" x 6" Pin	HBP-2-0	3/4 lb. Hammer
B-1224	3/4" 12 Pt Skt					ADJ. WRENCHES		P-8	1/4" x 6" Pin	GS-1	Feeler Ga. Set
B-15	Speeder			COMBINATION WRS		AP-6	6" Adj.	P-15	5/32" x 6" Solid		
B-20A	Sliding Tee			1161	7/16" x 7/16" opng	AP-8	8" Adj.	P-40	Center		
B-40A	Flex Handle			1162	1 1/2" x 1 1/2" opng			C-10	5/16" Cold		
B-52	Ratchet			1163	9/16" x 9/16" opng						

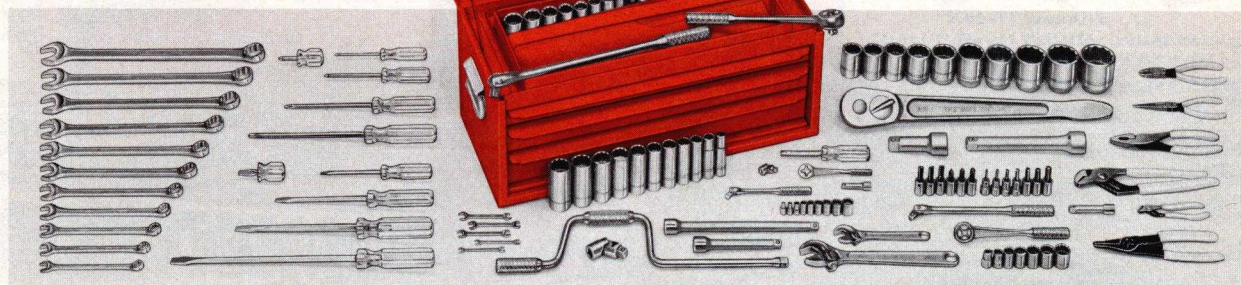
SUPERCHEST SET No. WSC-1001D

SET No. WSC-1001D

112 Tools in TB-1001 Metal Tool Chest
22-5/8" x 10-1/8" x 10"
Total Weight, 84.5 lbs.

SET No. WSC-1001DT

112 Tools Only
Total Weight, 48.5 lbs.



1/4" Drive—9 Sockets—5 Driver Parts
3/8" Drive—7 Sockets—16 Drive Parts
1/2" Drive—22 Sockets—6 Drive Parts

3/4" Drive—10 Sockets—3 Drive Parts
5 Electronic Wrs—11 Combination Wrs

2 Adjustable Wrs—6 Pliers—10 Screwdrivers

One Ea.	Description	One Ea.	Description	One Ea.	Description	One Ea.	Description	One Ea.	Description	One Ea.	Description
1/4" DRIVE		3/8" DRIVE		1/2" DRIVE		1/2" DRIVE		WRENCHES		PLIERS	
M-605	3/32" 6 Pt Skt	B-1222	1 1/16" 12 Pt Skt	ST-1214	7/16" 12 Pt Skt	S-15A	Speeder	1106	1 3/16" x 7/32" opng	PL-46C	6" Diag. Cut
M-606	3/16" 6 Pt Skt	B-1224	3/4" 12 Pt Skt	ST-1216	7/16" 12 Pt Skt	S-41A	Flex Handle	1107	1 9/16" x 1/4" opng	PL-76C	6" Chain Nose
M-608	3/8" 6 Pt Skt	BA-4	1/8" Hex Bit	ST-1218	7/16" 12 Pt Skt	S-S2	Ratchet	1108	9/32" x 1 1/32" opng	PL-218C	Crimper
M-1210	1/8" 12 Pt Skt	BA-5	5/32" Hex Bit	ST-1220	7/16" 12 Pt Skt	S-110P	5 1/2" Ext'n	1108A	1 3/4" x 9/16" opng	PL-370C	7 1/2" Slip Jt
M-1211	1 1/32" 12 Pt Skt	BA-6	3/16" Hex Bit	ST-1222	1 1/16" 12 Pt Skt	S-115P	10" Ext'n	1109	5/16" x 3/8" opng	PL-1519C	5" Superjoint
M-1212	3/8" 12 Pt Skt	BA-7	7/32" Hex Bit	ST-1224	3/4" 12 Pt Skt	S-140A	Universal Jt	1161	7/16" x 7/16" opng	PL-1520C	10" Superjoint
M-1214	3/8" 12 Pt Skt	BA-8	3/4" Hex Bit	ST-1226	1 1/16" 12 Pt Skt			1162	1 1/2" x 1/2" opng		
M-1216	3/8" 12 Pt Skt	BA-10	5/16" Hex Bit	ST-1228	7/8" 12 Pt Skt			1163	5/16" x 9/16" opng		
M-1218	1/2" 12 Pt Skt	BA-12	3/8" Hex Bit	ST-1230	1 1/8" 12 Pt Skt	3/4" DRIVE		1164	3/8" x 5/8" opng	SCREWDRIVERS	
M-42A	Flex Handle	BA-10-1P	#1 Phillips S.B.	ST-1232	1 1/2" 12 Pt Skt	H-1232	1" 12 Pt Skt	1165	1 1/16" x 1 1/16" opng	DS-4	4" Sq Blade
M-52	Ratchet	BA-10-2P	#2 Phillips S.B.	SD-1216	3/8" 12 Pt Dp.	H-1236	1 1/8" 12 Pt Skt	1166	3/4" x 3/4" opng	DS-6	6" Sq Blade
M-102	2" Ext'n	BA-10-3P	#3 Phillips S.B.	SD-1218	9/16" 12 Pt Dp.	H-1240	1 1/4" 12 Pt Skt	1167A	1 3/16" x 1 3/16" opng	DS-8	8" Sq Blade
M-106	Spinner Hdle	BA-10-2S	.040 Slot S.B.	SD-1220	5/8" 12 Pt Dp.	H-1242	1 1/8" 12 Pt Skt	1167	7/8" x 7/8" opng	DS-12	12" Sq Blade
M-140A	Universal Jt	BA-10-3S	.045 Slot S.B.	SD-1222	1 1/16" 12 Pt Dp.	H-1246	1 1/8" 12 Pt Skt	1168	1 9/16" x 9/16" opng	DS-62	1 3/4" Stubby
		BA-10-4S	.055 Slot S.B.	SD-1224	1 1/8" 12 Pt Dp.	H-1248	1 1/2" 12 Pt Skt	1170	1"x1" opng	DP-1	Phillips #1
		B-40A	Flex Handle	SD-1226	1 1/16" 12 Pt Dp.	H-1252	1 1/8" 12 Pt Skt	1171	1 1/16" x 1 1/16" opng	DP-2	Phillips #2
		B-52	Ratchet	SD-1228	7/8" 12 Pt Dp.	H-1254	1 1/16" 12 Pt Skt	AP-6	6" Adj Wr	DP-3	Phillips #3
		B-108	3" Ext'n	SD-1230	1 1/8" 12 Pt Dp.	H-1258	1 9/16" 12 Pt Skt	AP-10A	10" Adj Wr	DP-4	Phillips #4
3/8" DRIVE		1/2" DRIVE		1/2" DRIVE		H-51	Ratchet			DP-62	Phillips #2
B-1212	3/8" 12 Pt Skt			SD-1232	1" 12 Pt Dp.	H-104	4" Ext'n				
B-1214	7/16" 12 Pt Skt			SD-1234	1 1/16" 12 Pt Dp.	H-110	8" Ext'n				
B-1216	3/8" 12 Pt Skt			SD-1236	1 1/8" 12 Pt Dp.						
B-1218	9/16" 12 Pt Skt										
B-1218	3/8" 12 Pt Skt	ST-1212	3/8" 12 Pt Skt								

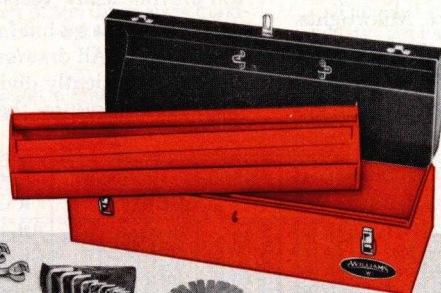
INDUSTRIAL MECHANIC and MACHINE REPAIR SET

SET No. WSC-5B

81 Tools in TB-9T Metal Tool Box
23-1/4" x 7-1/2" x 9-1/4"
Total Weight, 43.1 lbs.

SET No. WSC-5BT

81 Tools Only
Total Weight, 28.5 lbs.



**1/2" Drive—3 Drive Parts, 26 Sockets and Bits
13 Hex Key Wrs**

**8 Combination Wrs—7 Flare Nut Wrs
2 Spanners—1 Chain Wrench**

**3 Screwdrivers—6 Pliers—3 Chisels—4 Punches
2 Hammers—1 Feeler Gauge Set**



One Ea.	Description	One Ea.	Description	One Ea.	Description	One Ea.	Description	One Ea.	Description	One Ea.	Description
1/2" DRIVE		1/2" DRIVE		1/2" DRIVE		WRENCHES		CHISELS & PUNCHES		PLIERS	
ST-1212	3/8" 12 Pt Skt	ST-1240	1 1/4" 12 Pt Skt	S-52	Ratchet	1312	3/8"x 3/8" opng	C-24	3/4" Cold	PL-46C	6" Diag Cut
ST-1214	7/16" 12 Pt Skt	SA-8	1 1/4" Hex Bit	S-110P	5 1/2" Ext'n	1314	7/16"x 7/16" opng	C-72	1 1/4" Rd Nose	PL-76C	6" Chain Nose
ST-1216	1 1/2" 12 Pt Skt	SA-10	3/16" Hex Bit	S-115P	10 1/2" Ext'n	1316	1 1/2"x 1 1/2" opng	C-124	3/4"x 12" Cold	PL-218C	Crimper
ST-1218	9/16" 12 Pt Skt	SA-12	3/8" Hex Bit	WRENCHES		1318	9/16"x 9/16" opng	P-6	3/16" Pin	PL-370C	7 1/2" Slip Jt
ST-1220	5/8" 12 Pt Skt	SA-16	1 1/8" Hex Bit			1320	5/8"x 5/8" opng	P-13	3/32" Solid	PL-1519C	5" Superjoint
ST-1222	1 1/16" 12 Pt Skt	SA-18	9/16" Hex Bit	1161	7/16"x 7/16" opng	1322	1 1/16"x 1 1/16" opng	P-25	5/32" Taper	PL-1520C	10" Superjoint
ST-1224	3/4" 12 Pt Skt	SA-20	5/8" Hex Bit	1162	7/16"x 1 1/2" opng	1324	3/4"x 3/4" opng	P-40	Center	MISC. TOOLS	
ST-1226	1 3/16" 12 Pt Skt	SA-10-2P	#2 Phillips S.B.	1163	9/16"x 9/16" opng	471	2"-4 1/2" diam	SCREWDRIVERS			
ST-1228	7/8" 12 Pt Skt	SA-10-3P	#3 Phillips S.B.	1164	5/8"x 5/8" opng	474	2"-4 3/4" diam	DS-8	8" Sq Blade	HBP-2-0	3/4 lb. Hammer
ST-1230	1 5/16" 12 Pt Skt	SA-10-4P	#4 Phillips S.B.	1165	1 1/16"x 1 1/16" opng	CW-4	Chain Wrench	DS-12	12" Sq Blade	HSF-20H	Hard Tip
ST-1232	1 1/2" 12 Pt Skt	SA-10-2S	.040 Slot S.B.	1166	3/4"x 3/4" opng	WS-44A	13 Hex Wrs	DP-3	Phillips #3	HSF-20S	Soft Tip
ST-1234	1 1/8" 12 Pt Skt	SA-10-3S	.045 Slot S.B.	1167A	1 3/16"x 1 3/16" opng	.....	.....	.....	.....	HSF-200	Hammer Body
ST-1236	1 1/4" 12 Pt Skt	SA-10-4S	.055 Slot S.B.	1167	7/8"x 7/8" opng	.....	.....	.....	.....	GS-1	Feeler Gauge

MACHINERY MAINTENANCE SET



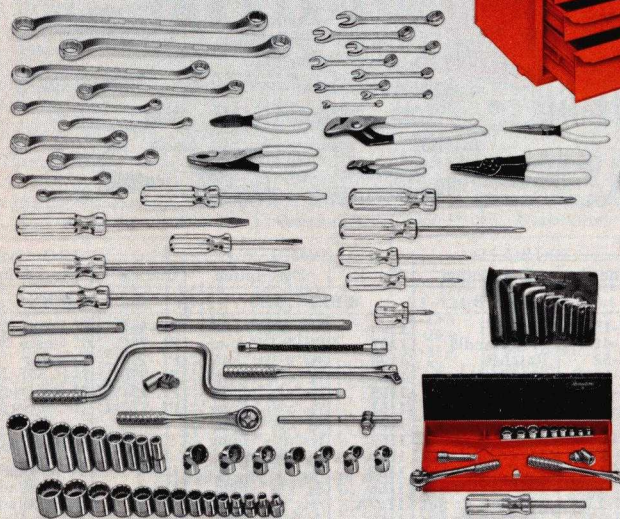
7-Drawer TB-2002
furnished with SET No. WSC-107AC



6-Drawer
TB-2001
furnished with
SET No.
WSC-107AB



11-Drawer TB-4001
furnished with SET No. WSC-107AD

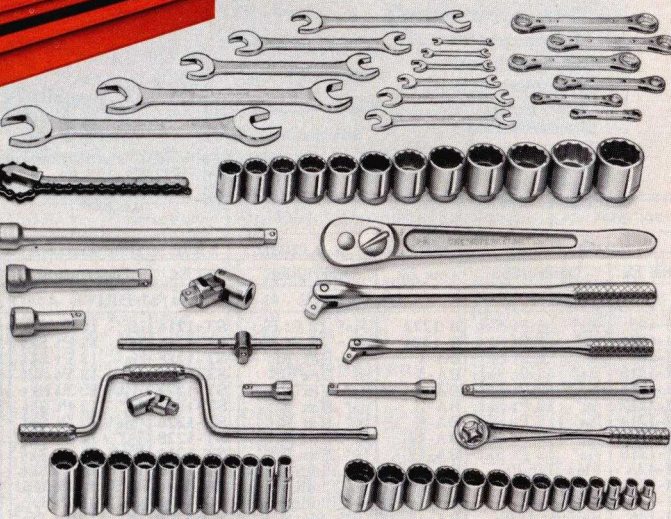


SET No. WSC-107AB

169 Tools in TB-2001 Tool Chest
25-7/8" x 12-1/8" x 14-1/2"
Total Weight, 147.5 lbs.

SET No. WSC-107AC

169 Tools in TB-2002 Tool Chest
25-7/8" x 12-1/8" x 14-1/2"
Total Weight, 147.5 lbs.



SET No. WSC-107AD

169 Tools in TB-4001 Tool Chest
25-7/8" x 12-1/8" x 18-1/8"
Total Weight, 169.5 lbs.

SET No. WSC-107AT

169 Tools Only

Total Weight, 81.5 lbs.

When it comes to sockets, drivers and wrenches, the range of opening sizes, from $\frac{5}{32}$ " to 2", and the variety of styles make this an ideal set for general machinery maintenance. Millwrights, mechanical equipment repairmen and contractors' mechanics will find this an outstanding selection of nut-turning tools.

Reinforced, welded construction of the sturdy TB-2001 six-

drawer, TB-2002 seven-drawer or TB-4001 11-drawer metal chest will provide many years of safe, convenient storage not only for the tools in this set but for many others that may be added from time to time. All drawers operate on smooth, easy glide runners and are conveniently divided. A sturdy cylinder lock actuates the latch bar that secures the hinged drop cover at both ends.

One Ea.	Description	One Ea.	Description	One Ea.	Description	One Ea.	Description	One Ea.	Description	One Ea.	Description
1/4" DRIVE		3/8" DRIVE		1/2" DRIVE		1/2" DRIVE		RATCHET BOX WRS		BOX WRENCHES	
M-605	$\frac{5}{32}$ " 6 Pt Skt	B-1230	$\frac{15}{16}$ " 12 Pt Skt	ST-1212	$\frac{3}{8}$ " 12 Pt Skt	S-52	Ratchet	RB-2022	$\frac{5}{8}$ " x $1\frac{1}{4}$ " opng	8731	$\frac{3}{4}$ " x $1\frac{3}{16}$ " opng
M-606	$\frac{1}{16}$ " 6 Pt Skt	B-1232	1" 12 Pt Skt	ST-1214	$\frac{1}{2}$ " 12 Pt Skt	S-102P	$2\frac{1}{2}$ " Ext'n	RB-2024	$\frac{5}{8}$ " x $\frac{3}{4}$ " opng	8733	$\frac{7}{8}$ " x 1" opng
M-608	$\frac{1}{4}$ " 6 Pt Skt	BD-1212	$\frac{3}{8}$ " 12 Pt Dp	ST-1216	$\frac{1}{2}$ " 12 Pt Skt	S-110P	$5\frac{1}{2}$ " Ext'n	RB-2428	$\frac{3}{4}$ " x $\frac{7}{8}$ " opng	8034A	$\frac{15}{16}$ " x $1\frac{1}{16}$ " opng
M-1210	$\frac{1}{16}$ " 12 Pt Skt	BD-1214	$\frac{1}{2}$ " 12 Pt Dp	ST-1218	$\frac{9}{16}$ " 12 Pt Skt	S-115P	10" Ext'n	ELECTRONIC WRS		9723	$\frac{3}{8}$ " x $\frac{1}{2}$ " opng
M-1211	$1\frac{1}{32}$ " 12 Pt Skt	BD-1216	$\frac{1}{2}$ " 12 Pt Dp	ST-1220	$\frac{5}{8}$ " 12 Pt Skt	S-140A	Universal Jt	XOEE-610	$\frac{1}{16}$ " x $\frac{3}{16}$ " opng	9725B	$\frac{1}{2}$ " x $\frac{9}{16}$ " opng
M-1212	$\frac{3}{8}$ " 12 Pt Skt	BD-1218	$\frac{9}{16}$ " 12 Pt Dp	ST-1222	$\frac{11}{16}$ " 12 Pt Skt	3/4" DRIVE		XOEE-1212	$\frac{3}{8}$ " x $\frac{3}{8}$ " opng	9729	$\frac{5}{8}$ " x $\frac{3}{4}$ " opng
M-1214	$\frac{1}{2}$ " 12 Pt Skt	BD-1220	$\frac{3}{8}$ " 12 Pt Dp	ST-1224	$\frac{3}{4}$ " 12 Pt Skt	H-1232	1" 12 Pt Skt	XOEE-1214	$\frac{1}{2}$ " x $\frac{1}{2}$ " opng	9029C	$\frac{1}{16}$ " x $1\frac{3}{16}$ " opng
M-1216	$\frac{1}{2}$ " 12 Pt Skt	BD-1222	$\frac{11}{16}$ " 12 Pt Dp	ST-1226	$\frac{13}{16}$ " 12 Pt Skt	H-1234	$1\frac{1}{16}$ " 12 Pt Skt	XOEE-1216	$\frac{1}{2}$ " x $\frac{1}{2}$ " opng	MISC. WRENCHES	
M-1218	$\frac{9}{16}$ " 12 Pt Skt	BD-1224	$\frac{3}{4}$ " 12 Pt Dp	ST-1228	$\frac{7}{8}$ " 12 Pt Skt	H-1236	$1\frac{1}{8}$ " 12 Pt Skt	XOEE-1218	$\frac{1}{2}$ " x $\frac{3}{16}$ " opng	CW-4	Chain Wrench
M-42A	Flex Handle	BD-1226	$\frac{13}{16}$ " 12 Pt Dp	ST-1230	$\frac{15}{16}$ " 12 Pt Skt	H-1240	$1\frac{1}{4}$ " 12 Pt Skt	XOEE-1220	$\frac{5}{8}$ " x $\frac{3}{8}$ " opng	WS-44A	13 Hex Wrs
M-52	Ratchet	BD-1228	$\frac{7}{8}$ " 12 Pt Dp	ST-1232	1" 12 Pt Skt	H-1242	$1\frac{1}{2}$ " 12 Pt Skt	XOEE-1222	$1\frac{1}{16}$ " x $1\frac{1}{16}$ " opng	PLIERS	
M-102	2" Ext'n	BU-1212	$\frac{3}{8}$ " 12 Pt Uni	ST-1234	$\frac{11}{16}$ " 12 Pt Skt	H-1246	$1\frac{1}{2}$ " 12 Pt Skt	XOEE-1224	$\frac{3}{4}$ " x $\frac{3}{4}$ " opng	PL-46C	6" Diag. Cut.
M-106	Spinner Hdl	BU-1214	$\frac{1}{2}$ " 12 Pt Uni	ST-1236	$1\frac{1}{8}$ " 12 Pt Skt	H-1248	$1\frac{3}{8}$ " 12 Pt Skt	END WRENCHES		PL-76C	6" Chain Nose
M-140A	Universal Jt	BU-1216	$\frac{1}{2}$ " 12 Pt Uni	ST-1240	$1\frac{1}{4}$ " 12 Pt Skt	H-1254	$1\frac{1}{16}$ " 12 Pt Skt	1020	$\frac{1}{4}$ " x $\frac{1}{2}$ " opng	PL-218C	Crimper
TB-3A	Tool Box	BU-1218	$\frac{1}{2}$ " 12 Pt Uni	SD-1216	$\frac{1}{2}$ " 12 Pt Dp	H-1258	$1\frac{3}{16}$ " 12 Pt Skt	1720	$\frac{5}{16}$ " x $1\frac{1}{2}$ " opng	PL-370C	$7\frac{1}{2}$ " Slip Jt.
		BU-1220	$\frac{1}{2}$ " 12 Pt Uni	SD-1218	$\frac{9}{16}$ " 12 Pt Dp	H-1260	$1\frac{1}{8}$ " 12 Pt Skt	1723	$\frac{1}{2}$ " x $\frac{9}{16}$ " opng	PL-1519C	5" Superjoint
		BU-1222	$\frac{11}{16}$ " 12 Pt Uni	SD-1220	$\frac{5}{8}$ " 12 Pt Dp	H-1264	2" 12 Pt Skt	1725B	$\frac{5}{8}$ " x $\frac{3}{4}$ " opng	PL-1520C	10" Superjoint
		BU-1224	$\frac{3}{4}$ " 12 Pt Uni	SD-1222	$\frac{11}{16}$ " 12 Pt Dp	H-41A	Flex Handle	1729	$\frac{1}{16}$ " x $1\frac{3}{16}$ " opng	SCREWDRIVERS	
B-1208	$\frac{1}{4}$ " 12 Pt Skt	B-15	Speeder	SD-1224	$\frac{3}{4}$ " 12 Pt Dp	H-51	Ratchet	1029C	$\frac{7}{8}$ " x 1" opng	DR-24	4" Mech/cs
B-1210	$\frac{1}{16}$ " 12 Pt Skt	B-20A	Sliding Tee	SD-1226	$\frac{13}{16}$ " 12 Pt Dp	H-104	4" Ext'n	1733	$\frac{1}{2}$ " x $\frac{1}{2}$ " opng	DR-26	6" Mech/cs
B-1211	$\frac{1}{32}$ " 12 Pt Skt	B-40A	Flex Handle	SD-1228	$\frac{7}{8}$ " 12 Pt Dp	H-110	8" Ext'n	1034A	$\frac{1}{4}$ " x $1\frac{1}{16}$ " opng	DR-28	8" Mech/cs
B-1212	$\frac{3}{8}$ " 12 Pt Skt	B-52	Ratchet	SD-1230	$\frac{15}{16}$ " 12 Pt Dp	H-115	$15\frac{1}{2}$ " Ext'n	1737	$1\frac{1}{8}$ " x $1\frac{1}{2}$ " opng	DR-30	10" Mech/cs
B-1214	$\frac{1}{2}$ " 12 Pt Skt	B-108	3" Ext'n	SD-1232	1" 12 Pt Dp	H-140A	Universal Jt	1039A	$\frac{1}{4}$ " x $1\frac{1}{2}$ " opng	DR-32	12" Mech/cs
B-1216	$\frac{1}{2}$ " 12 Pt Skt	B-110	6" Ext'n	SD-1234	$\frac{11}{16}$ " 12 Pt Dp			1041	$\frac{1}{16}$ " x $1\frac{1}{8}$ " opng	DP-1	Phillips #1
B-1218	$\frac{9}{16}$ " 12 Pt Skt	B-115	$10\frac{1}{2}$ " Ext'n	SD-1236	$1\frac{1}{8}$ " 12 Pt Dp	RATCHET BOX WRS		BOX WRENCHES		DP-2	Phillips #2
B-1220	$\frac{3}{8}$ " 12 Pt Skt	B-140A	Universal Jt	S-15A	Speeder	RB-810	$\frac{1}{4}$ " x $\frac{5}{16}$ " opng	8723	$\frac{3}{8}$ " x $\frac{3}{16}$ " opng	DP-3	Phillips #3
B-1222	$\frac{11}{16}$ " 12 Pt Skt	BFE-8	Flex Ext'n	S-20A	Sliding Tee	RB-1214	$\frac{3}{8}$ " x $\frac{5}{16}$ " opng	8725B	$\frac{1}{2}$ " x $\frac{9}{16}$ " opng	DP-4	Phillips #4
B-1224	$\frac{3}{4}$ " 12 Pt Skt			S-41A	Flex Handle	RB-1618	$\frac{1}{2}$ " x $\frac{9}{16}$ " opng	8727A	$\frac{5}{8}$ " x $1\frac{1}{16}$ " opng	DP-62	Phillips #2

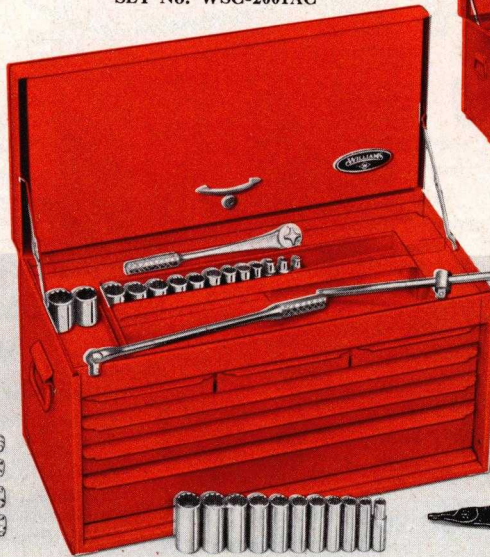


SUPERCHEST SETS



11 Drawer
Roller
Cabinet
TC-201C
furnished
with
SET No.
WSC-2001AF

6 Drawer TB-2001
furnished with
SET No. WSC-2001AC

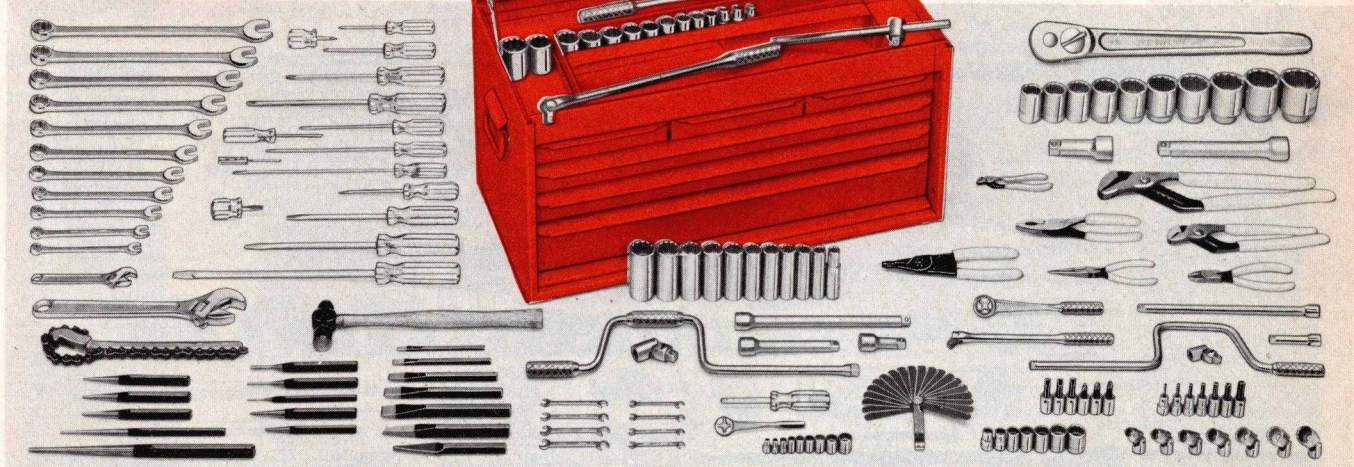


7 Drawer TB-2002
furnished with
SET No. WSC-2001AD



11 Drawer TB-4001
furnished with
SET No. WSC-2001AE

2
ALLOY
SOCKETS
AND
SETS



SET No. WSC-2001AC
153 Tools
In TB-2001 Tool Chest
25-7/8" x 12-1/8" x 14-1/2"
Total Weight, 130.5 lbs.

SET No. WSC-2001AD
153 Tools
In TB-2002 Tool Chest
25-7/8" x 12-1/8" x 14-1/2"
Total Weight, 130.5 lbs.

SET No. WSC-2001AE
153 Tools
In TB-4001 Tool Chest
25-7/8" x 12-1/8" x 18-1/8"
Total Weight, 153.5 lbs.

SET No. WSC-2001AF
153 Tools
In TC-201C Roll. Cab.
26-3/8" x 18" x 40-1/4"
Total Weight, 266.5 lbs.

SET No. WSC-2001AT
153 Tools
Only
Total Weight, 64.5 lbs.

With hex or 12-point socket openings from $\frac{5}{32}$ " thru $1\frac{1}{16}$ " and a variety of drivers in $\frac{1}{4}$ ", $\frac{3}{8}$ ", $\frac{1}{2}$ " and $\frac{3}{4}$ " drives this becomes a remarkably versatile set. Any detachable socket tool a mechanic could possibly desire can be "tailor-made" instantly from this amazingly wide selection. Adapters in each of the drive sizes make it possible to use drivers of one size with sockets of the next larger drive size.

In addition to an extremely flexible socket wrench system, this set is adequately filled with midget open-end wrenches, combina-

tion open end-box wrenches, adjustable wrenches, pliers, punches, chisels and screwdrivers plus a ball pein hammer, feeler gauge set and a 4" capacity chain wrench.

The wide range of work that can be covered by such a comprehensive set as this makes it ideal for general maintenance mechanics, millwrights, mechanical equipment repairmen, general contractors, mechanics on unit-type assembly lines, automotive mechanics and many others. With this set the operator is sure to have the right tool at the right time.

One Ea.	Description	One Ea.	Description	One Ea.	Description	One Ea.	Description	One Ea.	Description	One Ea.	Description
1/4" DRIVE		3/8" DRIVE		1/2" DRIVE		3/4" DRIVE		WRENCHES		SCREWDRIVERS	
MD-605	$\frac{5}{16}$ " 6 Pt Dp	BA-10-2P	#2 Phillips S. B.	ST-1228	$\frac{3}{16}$ " 12 Pt Skt	H-1232	1" 12 Pt Skt	CW-4	Chain Wr	DE-52	2" Pocket
MD-606	$\frac{3}{16}$ " 6 Pt Dp	BA-10-3P	#3 Phillips S. B.	ST-1230	$\frac{1}{2}$ " 12 Pt Skt	H-1234	$\frac{1}{2}$ " 12 Pt Skt	OEE-1315	$\frac{1}{4}$ " x $\frac{1}{4}$ " opng	DP-1	Phillips #1
MD-608	$\frac{1}{4}$ " 6 Pt Dp	BA-10-2S	.040 Slot S. B.	ST-1232	1" 12 Pt Skt	H-1236	$\frac{1}{2}$ " 12 Pt Skt	OEE-1416	$\frac{3}{16}$ " x $\frac{1}{4}$ " opng	DP-2	Phillips #2
MD-1210	$\frac{1}{16}$ " 12 Pt Dp	BA-10-3S	.045 Slot S. B.	ST-1234	$\frac{1}{2}$ " 12 Pt Skt	H-1240	$\frac{1}{4}$ " 12 Pt Skt	OEE-1513	$\frac{1}{4}$ " x $\frac{1}{4}$ " opng	DP-3	Phillips #3
MD-1211	$\frac{1}{32}$ " 12 Pt Dp	BA-10-4S	.055 Slot S. B.	ST-1236	$\frac{1}{2}$ " 12 Pt Skt	H-1242	$\frac{1}{16}$ " 12 Pt Skt	OEE-1614	$\frac{1}{4}$ " x $\frac{3}{32}$ " opng	DP-4	Phillips #4
MD-1212	$\frac{3}{16}$ " 12 Pt Dp	BU-1212	$\frac{3}{8}$ " 12 Pt Uni	ST-1240	$\frac{1}{4}$ " 12 Pt Skt	H-1246	$\frac{1}{16}$ " 12 Pt Skt	OEE-1820	$\frac{3}{16}$ " x $\frac{3}{16}$ " opng	DP-62	Phillips #2
MD-1214	$\frac{1}{16}$ " 12 Pt Dp	BU-1214	$\frac{1}{16}$ " 12 Pt Uni	SD-1216	$\frac{1}{2}$ " 12 Pt Dp	H-1248	$\frac{1}{32}$ " 12 Pt Skt	OEE-2018	$\frac{1}{16}$ " x $\frac{3}{32}$ " opng	PUNCHES & CHISELS	
MD-1216	$\frac{1}{8}$ " 12 Pt Dp	BU-1216	$\frac{1}{8}$ " 12 Pt Uni	SD-1218	$\frac{3}{16}$ " 12 Pt Dp	H-1252	$\frac{1}{8}$ " 12 Pt Skt	OEE-2224	$\frac{1}{32}$ " x $\frac{3}{16}$ " opng	P-4	$\frac{1}{8}$ " x 6" Pin
MD-1218	$\frac{3}{16}$ " 12 Pt Dp	BU-1218	$\frac{3}{16}$ " 12 Pt Uni	SD-1220	$\frac{5}{16}$ " 12 Pt Dp	H-1254	$\frac{1}{16}$ " x $\frac{1}{2}$ " Pt Skt	OEE-2422	$\frac{3}{8}$ " x $\frac{1}{32}$ " opng	P-6	$\frac{3}{16}$ " x 6" Pin
M-52	Ratchet	BU-1220	$\frac{5}{8}$ " 12 Pt Uni	SD-1222	$\frac{1}{2}$ " 12 Pt Dp	H-1258	$\frac{1}{16}$ " x $\frac{1}{2}$ " Pt Skt	PLIERS		P-8	$\frac{1}{4}$ " x 6" Pin
M-106	Spinner Hdle	BU-1222	$\frac{1}{16}$ " 12 Pt Uni	SD-1224	$\frac{3}{4}$ " 12 Pt Dp	H-51	Ratchet	PL-46C	6" Diag Cut	P-14	$\frac{1}{8}$ " x 6" Pin
3/8" DRIVE		BU-1224	$\frac{3}{4}$ " 12 Pt Uni	SD-1226	$\frac{1}{2}$ " 12 Pt Dp	H-104	4" Ext'n	PL-76C	6" Chn Nose	P-15	$\frac{5}{32}$ " x 6" Solid
B-1212	$\frac{3}{8}$ " 12 Pt Skt	B-15	Speeder	SD-1228	$\frac{3}{8}$ " 12 Pt Dp	H-110	8" Ext'n	PL-218C	Crimper	P-16	$\frac{3}{16}$ " x 6" Solid
B-1214	$\frac{7}{16}$ " 12 Pt Skt	B-40A	Flex Handle	SD-1230	$\frac{1}{2}$ " 12 Pt Dp	WRENCHES		PL-370C	$\frac{7}{16}$ " Slip Jt	P-25	$\frac{5}{32}$ " Taper
B-1216	$\frac{1}{2}$ " 12 Pt Skt	B-52	Ratchet	SD-1232	1" 12 Pt Dp	1161	$\frac{7}{16}$ " x $\frac{7}{16}$ " opng	PL-1519C	5" Superjoint	P-28	$\frac{3}{4}$ " Taper
B-1218	$\frac{9}{16}$ " 12 Pt Skt	B-108	3" Ext'n	SD-1234	$\frac{1}{2}$ " 12 Pt Dp	1162	$\frac{1}{2}$ " x $\frac{1}{2}$ " opng	PL-1520C	10" Superjoint	P-32	6" Prick
B-1220	$\frac{5}{8}$ " 12 Pt Skt	B-115	10 $\frac{1}{2}$ " Ext'n	SD-1236	$\frac{1}{2}$ " 12 Pt Dp	1163	$\frac{9}{16}$ " x $\frac{9}{16}$ " opng	PL-1522C	14" Superjoint	P-40	5" Center
B-1222	$\frac{1}{16}$ " 12 Pt Skt	B-140A	Universal Jt	S-15A	Speeder	1164	$\frac{5}{8}$ " x $\frac{5}{8}$ " opng	SCREWDRIVERS		C-10	$\frac{1}{16}$ " Cold
B-1224	$\frac{3}{4}$ " 12 Pt Skt	1/2" DRIVE		S-20A	Sliding Tee	1165	$\frac{1}{16}$ " x $\frac{1}{16}$ " opng	DS-4	4" Sq Blade	C-12	$\frac{3}{8}$ " Cold
BA-4	$\frac{1}{8}$ " Hex Bit Skt	ST-1212	$\frac{3}{8}$ " 12 Pt Skt	S-41A	Flex Handle	1166	$\frac{3}{4}$ " x $\frac{3}{4}$ " opng	DS-6	6" Sq Blade	C-16	$\frac{1}{2}$ " Cold
BA-5	$\frac{5}{32}$ " Hex Bit Skt	ST-1214	$\frac{7}{16}$ " 12 Pt Skt	S-52	Ratchet	1167A	$\frac{1}{16}$ " x $\frac{1}{16}$ " opng	DS-8	8" Sq Blade	C-20	$\frac{5}{8}$ " Cold
BA-6	$\frac{3}{16}$ " Hex Bit Skt	ST-1216	$\frac{1}{2}$ " 12 Pt Skt	S-102P	2 $\frac{1}{2}$ " Ext'n	1167	$\frac{7}{8}$ " x $\frac{7}{8}$ " opng	DS-12	12" Sq Blade	C-24	$\frac{3}{4}$ " Cold
BA-7	$\frac{3}{32}$ " Hex Bit Skt	ST-1218	$\frac{9}{16}$ " 12 Pt Skt	S-110P	5 $\frac{1}{2}$ " Ext'n	1168	$\frac{1}{16}$ " x $\frac{1}{16}$ " opng	DS-62	1 $\frac{1}{4}$ " Stubby	C-42	$\frac{1}{4}$ " Cape
BA-8	$\frac{1}{4}$ " Hex Bit Skt	ST-1220	$\frac{5}{8}$ " 12 Pt Skt	S-115P	10 $\frac{1}{2}$ " Ext'n	1170	1" x 1" opng	DE-43	3" Electr'n	C-62	$\frac{3}{8}$ " Diamond
BA-10	$\frac{5}{16}$ " Hex Bit Skt	ST-1222	$\frac{1}{16}$ " 12 Pt Skt	S-140A	Universal Jt	1171	$\frac{1}{16}$ " x $\frac{1}{16}$ " opng	DE-46	6" Electr'n	MISCELLANEOUS	
BA-12	$\frac{3}{8}$ " Hex Bit Skt	ST-1224	$\frac{3}{4}$ " 12 Pt Skt			AP-6	6" Adjustable	DE-48	8" Electr'n	HBP-2-0	$\frac{3}{4}$ lb. Hammer
BA-10-1P	#1 Phillips S. B.	ST-1226	$\frac{1}{16}$ " 12 Pt Skt			AP-12	12" Adjustable	DE-50	10" Electr'n	GS-1	Feeler Gauge

DIESEL and STATIONARY EQUIPMENT MASTER MECHANIC'S SET

SET No. WSC-75

205 Tools in Mobile Tool Crib TC-104C Platform

Plus TC-101 and TC-102 Cabinets

Total Weight, 436.5 lbs.

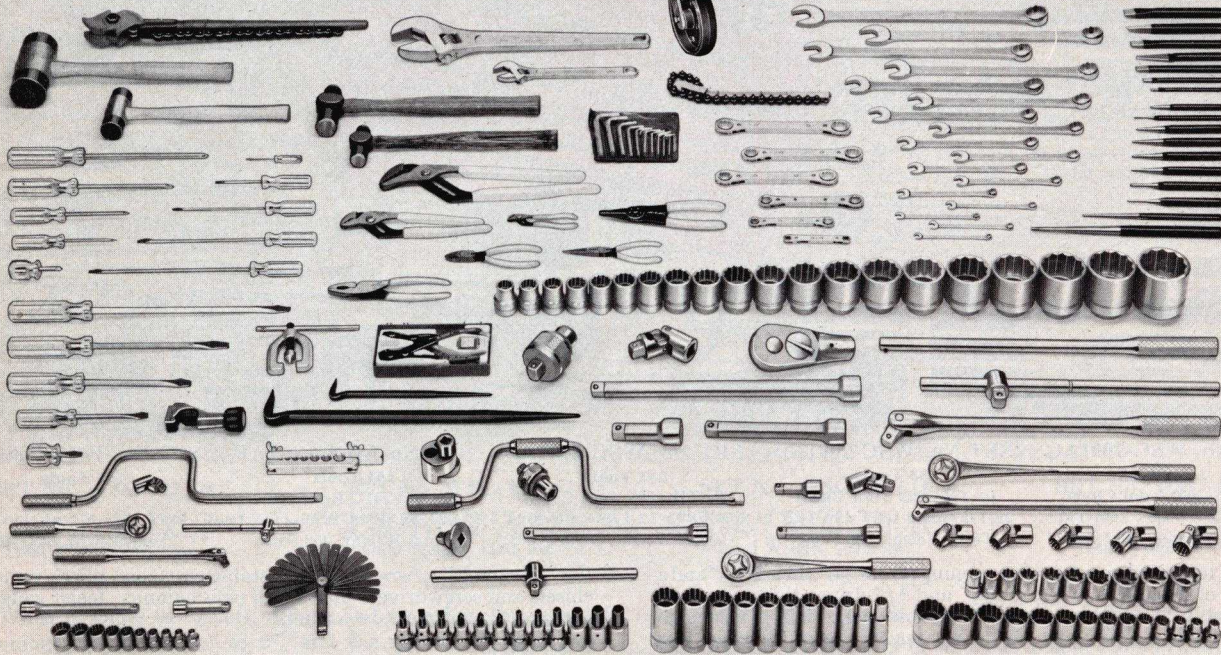
SET No. WSC-75T

205 Tools Only

Total Weight, 137 lbs.



Here's a master set for a variety of Diesel engine needs and stationary equipment maintenance. A wide range of wrenches complements sockets and accessories in three drive sizes. A good selection of miscellaneous tools insures convenience and versatility.



One Ea.	Description	One Ea.	Description	One Ea.	Description	One Ea.	Description	One Ea.	Description	One Ea.	Description
3/8" DRIVE		1/2" DRIVE		1/2" DRIVE		3/4" DRIVE		MISC. WRENCHES		SCREWDRIVERS	
B-1208	1 1/4" 12 Pt Skt	ST-812	3/8" 8 Pt Skt	SU-1222	1 1/16" 12 Pt Dp	H-1272	2 1/4" 12 Pt Skt	RB-2022	5/8"x1 1/16" opng	DS-4	4" Sq. Blade
B-1210	5/16" 12 Pt Skt	ST-814	7/16" 8 Pt Skt	SU-1224	3/4" 12 Pt Dp	H-1276	2 3/8" 12 Pt Skt	RB-2024	5/8"x3/8" opng	DS-6	6" Sq. Blade
B-1211	1 3/32" 12 Pt Skt	ST-816	8/16" 8 Pt Skt	S-15A	Speeder	H-A1	Handle	RB-2428	3/4"x7/8" opng	DS-8	8" Sq. Blade
B-1212	1 3/32" 12 Pt Skt	ST-818	9/16" 8 Pt Skt	S-20A	Sliding Tee	H-20A	Sliding Tee	AP-10A	10" Adj Wr	DS-12	12" Sq. Blade
B-1214	7/16" 12 Pt Skt	ST-820	5/8" 8 Pt Skt	S-41A	Flex Handle	H-41A	Flex Handle	AP-18	18" Adj Wr	DS-62	1 1/2" Stubby
B-1216	1 1/2" 12 Pt Skt	ST-822	1 1/16" 8 Pt Skt	S-52	1 1/4" Ratchet	H-51A	Ratchet	CW-4	Chain Wrench	DE-43	3" Electr'n
B-1218	1 1/2" 12 Pt Skt	ST-824	3/4" 8 Pt Skt	S-53	1 1/2" Ratchet	H-55	Ratchet Adapter	PLIERS		DE-46	6" Electr'n
B-1220	9/16" 12 Pt Skt	ST-826	1 3/16" 8 Pt Skt	S-55A	Reht. Adapter	H-104	4" Ext'n	PL-46C	6" Diag Cut	DE-48	8" Electr'n
B-1222	1 1/16" 12 Pt Skt	ST-828	7/16" 8 Pt Skt	S-60D	Stud Remover	H-110	8" Ext'n	PL-76C	6" Chain Nose	DE-50	10" Electr'n
B-1224	3/4" 12 Pt Skt	ST-832	1" 8 Pt Skt	S-70	Reht. Spinner	H-115	1 1/2" Ext'n	PL-218C	Crimper	DE-52	2" Pocket
B-15	Speeder	SD-1216	1 1/2" 12 Pt Dp	S-102P	2 1/2" Ext'n	H-140A	Universal Jt	PL-370C	7 1/2" Slip Jt	DP-1	Phillips #1
B-20A	Sliding Tee	SD-1218	9/16" 12 Pt Dp	S-110P	5 1/2" Ext'n	COMBINATION WRS		PL-1519C	5" Superjoint	DP-2	Phillips #2
B-40A	Flex Handle	SD-1220	9/16" 12 Pt Dp	S-115P	10" Ext'n			PL-1520C	10" Superjoint	DP-3	Phillips #3
B-52	Ratchet	SD-1222	1 1/16" 12 Pt Dp	S-140A	Universal Jt			PL-1522C	14" Superjoint	DP-4	Phillips #4
B-108	3" Ext'n	SD-1224	3/4" 12 Pt Dp	3/4" DRIVE		1158	1 1/4"x1 1/4" opng	PL-1600C	Plier Set	DP-62	Phillips #2
B-110	6" Ext'n	SD-1226	1 3/16" 12 Pt Dp	H-1224	3/4" 12 Pt Skt	1159	5 1/8"x5 1/8" opng	PUNCHES		HAMMERS	
B-115	10 1/2" Ext'n	SD-1228	7/8" 12 Pt Dp	H-1226	1 3/16" 12 Pt Skt	1159A	1 3/32"x1 3/32" opng	P-4	1 1/2"x6" Pin	HSF-155	Hammer Body
B-140A	Universal Jt	SD-1230	1 1/16" 12 Pt Dp	H-1228	7/8" 12 Pt Skt	1160	3 3/8"x3/8" opng	P-6	3/16"x6" Pin	HSF-15H	Hard Tip
1/2" DRIVE		SD-1232	1" 12 Pt Dp	H-1230	1 3/16" 12 Pt Skt	1161	7/16"x7/16" opng	P-8	1 1/8"x6" Pin	HSF-15S	Soft Tip
ST-1212	3/8" 12 Pt Skt	SD-1234	1 1/16" 12 Pt Dp	H-1232	1" 12 Pt Skt	1162	1 1/2"x1 1/2" opng	P-14	1 1/4"x6" Pin	HSF-250	Hammer Body
ST-1214	7/16" 12 Pt Skt	SD-1236	1 1/8" 12 Pt Dp	H-1234	1 1/16" 12 Pt Skt	1164	9/16"x9/16" opng	P-15	1 1/4"x6" Solid	HSF-25H	Hammer Body
ST-1216	1 1/2" 12 Pt Skt	SA-8	2 1/4" Hex Bit Skt	H-1236	1 1/8" 12 Pt Skt	1165	5/8"x5/8" opng	P-16	5/32"x6" Solid	HSF-25T	Tough Tip
ST-1218	9/16" 12 Pt Skt	SA-10	5/16" Hex Bit Skt	H-1240	1 1/4" 12 Pt Skt	1166	3/4"x3/4" opng	P-25	3/16"x6" Solid	HBP-0	1 lb. Hammer
ST-1220	5/8" 12 Pt Skt	SA-12	3/8" Hex Bit Skt	H-1242	1 5/16" 12 Pt Skt	1167A	1 1/16"x13/16" opng	P-28	1 1/2" Taper	HBP-4	2 lb. Hammer
ST-1222	1 1/16" 12 Pt Skt	SA-16	7/8" Hex Bit Skt	H-1244	1 7/16" 12 Pt Skt	1168	7/8"x7/8" opng	P-32	6" Prick		
ST-1224	3/4" 12 Pt Skt	SA-18	9/16" Hex Bit Skt	H-1246	1 9/16" 12 Pt Skt	1170	1 1/2"x1 5/16" opng	P-40	5" Center	MISC. TOOLS	
ST-1226	1 1/8" 12 Pt Skt	SA-20	5/8" Hex Bit Skt	H-1248	1 11/16" 12 Pt Skt	1171	1 1/2"x1" opng	CHISELS		TT-162	Flaring Tool
ST-1228	1 3/16" 12 Pt Skt	SA-10-2P	#2 Phillips S.B.	H-1252	1 1/2" 12 Pt Skt	1172	1 1/16"x1 1/16" opng	C-10	5/16" Cold	TT-46A	Tube Cutter
ST-1230	7/8" 12 Pt Skt	SA-10-3P	#3 Phillips S.B.	H-1254	1 13/16" 12 Pt Skt	1173	1 3/8"x1 3/8" opng	C-12	3/8" Cold	TS-144	13 Hex Wrs
ST-1232	1 1/16" 12 Pt Skt	SA-10-4P	#4 Phillips S.B.	H-1258	1 11/16" 12 Pt Skt	MISC. WRENCHES		C-16	1 1/4" Cold	GS-1	Feeler Gauge
ST-1234	1" 12 Pt Skt	SA-10-2S	.040 Slot S.B.	H-1260	1 7/8" 12 Pt Skt	RB-810	1/4"x5/16" opng	C-22	5/8" Cold	C-709	9 1/2" Roll Bar
ST-1236	1 1/8" 12 Pt Skt	SA-10-3S	.045 Slot S.B.	H-1264	2" 12 Pt Skt	RB-1214	3/8"x7/16" opng	C-24	3/4" Cold	C-718	18" Roll Bar
ST-1238	1 1/4" 12 Pt Skt	SA-10-4S	.055 Slot S.B.	H-1266	2 1/16" 12 Pt Skt	RB-1618	1/2"x9/16" opng	C-42	1 1/4" Cape	CT-1	Chain Tong
ST-1240	1 1/2" 12 Pt Skt	SU-1216	1/2" Univ Skt	H-1270	2 3/16" 12 Pt Skt			C-62	3/8" Cape		
		SU-1218	9/16" Univ Skt								
		SU-1220	5/8" Univ Skt								

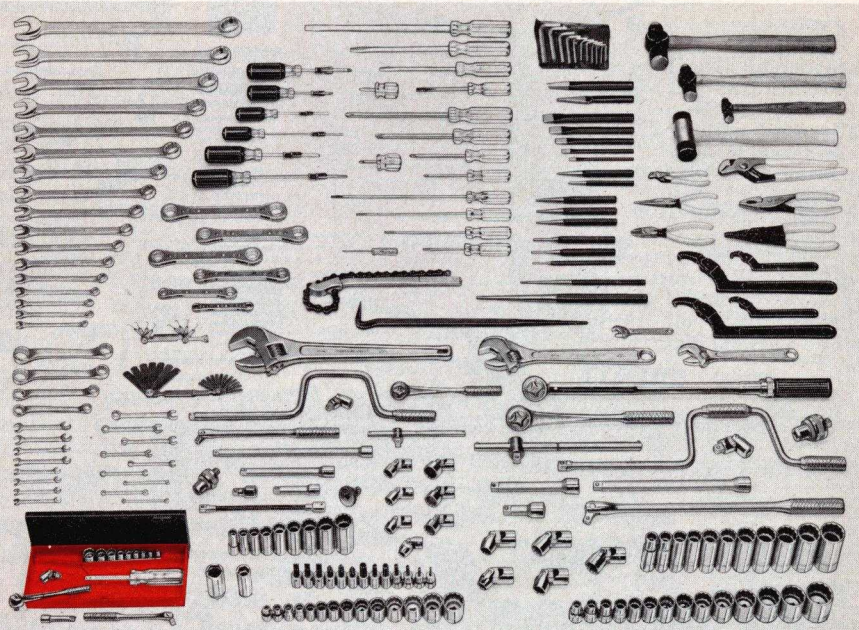
GENERAL SERVICE MOBILE WORK SHOPS



SET No. WSC-108AB
furnished with
TB-2001, TB-3001, TC-101C



SET No. WSC-108AC
furnished with
TB-2002, TB-3001, TC-102C



SET No. WSC-108AD
furnished with
TB-2001, TB-3001, TC-105C



SET No. WSC-108AE
furnished with
TB-2002, TB-3001, TC-105C

WSC-108AB 230 Tools In TB-2001, TB-3001 and TC-101C Rollcab Total Wgt., 274.8 lbs.	WSC-108AC 230 Tools In TB-2002, TB-3001 and TC-102C Rollcab Total Wgt., 299.8 lbs.	WSC-108AD 230 Tools In TB-2001, TB-3001 and TC-105C Rollcab Total Wgt., 303.8 lbs.	WSC-108AE 230 Tools In TB-2002, TB-3001 and TC-105C Rollcab Total Wgt., 303.8 lbs.	WSC-108AT 230 Tools Only Total Weight 76.8 lbs.
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From delicate service jobs, requiring only $\frac{5}{32}$ " hex opening, to heavy repair or assembly jobs requiring $1\frac{1}{4}$ " openings, this is the set that can do them all. It even includes a micrometer-type torque wrench that will measure 10 to 250 foot pounds. In this set the service mechanic has everything he needs right at the job to do it quickly and safely.

One Ea.	Description	One Ea.	Description	One Ea.	Description	One Ea.	Description	One Ea.	Description	One Ea.	Description
1/4" DRIVE		3/8" DRIVE		1/2" DRIVE		COMBINATION WRS		RATCHET BOX WRS		SCREWDRIVERS	
M-605	$\frac{5}{32}$ " 6 Pt Skt	BD-620P	$\frac{5}{8}$ " S.P. Skt	ST-1220	$\frac{5}{8}$ " 12 Pt Skt	1158	$\frac{1}{4}$ "x $\frac{1}{4}$ " opng	RB-2022	$\frac{5}{8}$ "x $\frac{1}{16}$ " opng	DSHG-64	6" Screw Hld
M-606	$\frac{3}{16}$ " 6 Pt Skt	BD-626P	$\frac{1}{2}$ " S.P. Skt	ST-1222	$\frac{1}{2}$ " 12 Pt Skt	1159	$\frac{5}{16}$ "x $\frac{3}{16}$ " opng	RB-2024	$\frac{5}{8}$ "x $\frac{3}{4}$ " opng	DSHG-76	7" Screw Hld
M-608	$\frac{1}{4}$ " 6 Pt Skt	BA-4	$\frac{1}{8}$ " Hex Bit Skt	ST-1224	$\frac{3}{4}$ " 12 Pt Skt	1159A	$\frac{1}{32}$ "x $\frac{1}{32}$ " opng	RB-2428	$\frac{3}{4}$ "x $\frac{3}{8}$ " opng	PLIERS	
M-1210	$\frac{5}{16}$ " 12 Pt Skt	BA-5	$\frac{5}{32}$ " Hex Bit Skt	ST-1226	$\frac{1}{2}$ " 12 Pt Skt	1160	$\frac{3}{8}$ "x $\frac{3}{8}$ " opng	BOX WRENCHES		PL-46C	6" Diag Cut
M-1211	$\frac{1}{32}$ " 12 Pt Skt	BA-6	$\frac{3}{16}$ " Hex Bit Skt	ST-1228	$\frac{3}{8}$ " 12 Pt Skt	1161	$\frac{3}{16}$ "x $\frac{3}{16}$ " opng	9723	$\frac{3}{8}$ "x $\frac{3}{16}$ " opng	PL-76C	6" Chain Nose
M-1212	$\frac{3}{8}$ " 12 Pt Skt	BA-7	$\frac{3}{32}$ " Hex Bit Skt	ST-1230	$\frac{1}{2}$ " 12 Pt Skt	1162	$\frac{1}{2}$ "x $\frac{1}{2}$ " opng	9725B	$\frac{1}{2}$ "x $\frac{3}{16}$ " opng	PL-218C	Crimper
M-1214	$\frac{3}{16}$ " 12 Pt Skt	BA-8	$\frac{1}{4}$ " Hex Bit Skt	ST-1232	1" 12 Pt Skt	1163	$\frac{5}{16}$ "x $\frac{5}{16}$ " opng	9729	$\frac{5}{8}$ "x $\frac{3}{4}$ " opng	PL-370C	7 $\frac{1}{2}$ " Slip Jt
M-1216	$\frac{1}{2}$ " 12 Pt Skt	BA-10	$\frac{5}{16}$ " Hex Bit Skt	ST-1234	$\frac{1}{2}$ " 12 Pt Skt	1164	$\frac{5}{8}$ "x $\frac{5}{8}$ " opng	9029C	$\frac{1}{16}$ "x $\frac{1}{16}$ " opng	PL-1519C	5" Superjoint
M-1218	$\frac{9}{16}$ " 12 Pt Skt	BA-12	$\frac{3}{4}$ " Hex Bit Skt	ST-1236	$\frac{1}{2}$ " 12 Pt Skt	1165	$\frac{1}{16}$ "x $\frac{1}{16}$ " opng	SPANNER WRS		PL-1520C	10" Superjoint
M-42A	Flex Handle	BA-10-1P	#1 Phillips S.B.	ST-1240	$\frac{1}{4}$ " 12 Pt Skt	1166	$\frac{3}{4}$ "x $\frac{3}{4}$ " opng	471	$\frac{3}{4}$ "-2" Dia	CHISELS & PUNCHES	
M-52	Ratchet	BA-10-2P	#2 Phillips S.B.	SD-1216	$\frac{1}{2}$ " 12 Pt Dp	1167A	$\frac{1}{16}$ "x $\frac{1}{16}$ " opng	474	2"-4 $\frac{3}{4}$ " Dia	C-10	$\frac{5}{16}$ " Cold
M-102	2" Ext'n	BA-10-3P	#3 Phillips S.B.	SD-1218	$\frac{9}{16}$ " 12 Pt Dp	1167	$\frac{3}{8}$ "x $\frac{3}{8}$ " opng	O-471	$\frac{3}{4}$ "-2" Dia	C-12	$\frac{3}{8}$ " Cold
M-106	Spinner Hdl	BA-10-2S	.040 Slot S.B.	SD-1220	$\frac{5}{8}$ " 12 Pt Dp	1168	$\frac{1}{16}$ "x $\frac{1}{16}$ " opng	O-474	2"-4 $\frac{3}{4}$ " Dia	C-16	$\frac{1}{2}$ " Cold
M-140A	Universal Jt	BA-10-3S	.045 Slot S.B.	SD-1222	$\frac{1}{2}$ " 12 Pt Dp	1170	1"x1" opng	ADJUSTABLE WRS		C-20	$\frac{5}{8}$ " Cold
TB-3A	Tool Box	BA-10-4S	.055 Slot S.B.	SD-1224	$\frac{3}{4}$ " 12 Pt Dp	1171	$\frac{1}{16}$ "x $\frac{1}{16}$ " opng	AP-4	4" Adjustable	C-24	$\frac{3}{4}$ " Cold
3/8" DRIVE		BU-1212	$\frac{3}{8}$ " 12 Pt Uni	SD-1226	$\frac{1}{2}$ " 12 Pt Dp	1172	$\frac{1}{8}$ "x $\frac{1}{8}$ " opng	AP-8	8" Adjustable	C-42	$\frac{1}{4}$ " Cape
B-1208	$\frac{1}{4}$ " 12 Pt Skt	BU-1214	$\frac{3}{16}$ " 12 Pt Uni	SD-1228	$\frac{3}{8}$ " 12 Pt Dp	1173	$\frac{1}{4}$ "x $\frac{1}{4}$ " opng	AP-12	12" Adjustable	C-62	$\frac{3}{8}$ " Dia. Pt.
B-1210	$\frac{5}{16}$ " 12 Pt Skt	BU-1216	$\frac{1}{2}$ " 12 Pt Uni	SD-1230	$\frac{1}{2}$ " 12 Pt Dp	ELECTRONIC WRS		AP-15	15" Adjustable	P-4	$\frac{1}{8}$ "x6" Pin
B-1211	$\frac{1}{32}$ " 12 Pt Skt	BU-1218	$\frac{9}{16}$ " 12 Pt Uni	SD-1232	1" 12 Pt Dp	XOEE-604	$\frac{1}{8}$ "x $\frac{1}{8}$ " opng	CW-4	Chain Wrench	P-6	$\frac{5}{16}$ "x6" Pin
B-1212	$\frac{3}{8}$ " 12 Pt Skt	BU-1220	$\frac{5}{8}$ " 12 Pt Uni	SD-1234	$\frac{1}{16}$ " 12 Pt Dp	XOEE-605	$\frac{5}{32}$ "x $\frac{5}{32}$ " opng	SCREWDRIVERS		P-8	$\frac{1}{4}$ "x6" Pin
B-1214	$\frac{3}{16}$ " 12 Pt Skt	BU-1222	$\frac{1}{16}$ " 12 Pt Uni	SD-1236	$\frac{1}{8}$ " 12 Pt Dp	XOEE-606	$\frac{3}{16}$ "x $\frac{3}{16}$ " opng	DE-43	3" Electr'n	P-14	$\frac{1}{8}$ "x6" Solid
B-1216	$\frac{1}{2}$ " 12 Pt Skt	BU-1224	$\frac{3}{4}$ " 12 Pt Uni	SU-1216	$\frac{1}{2}$ " 12 Pt Uni	XOEE-607	$\frac{3}{32}$ "x $\frac{3}{32}$ " opng	DE-46	6 $\frac{1}{2}$ " Electr'n	P-15	$\frac{5}{32}$ "x6" Solid
B-1218	$\frac{9}{16}$ " 12 Pt Skt	B-15	Speeder	SU-1218	$\frac{9}{16}$ " 12 Pt Uni	XOEE-608	$\frac{1}{4}$ "x $\frac{1}{4}$ " opng	DE-48	8" Electr'n	P-16	$\frac{3}{16}$ "x6" Solid
B-1220	$\frac{5}{8}$ " 12 Pt Skt	B-20A	Sliding Tee	SU-1220	$\frac{5}{8}$ " 12 Pt Uni	XOEE-609	$\frac{9}{32}$ "x $\frac{9}{32}$ " opng	DE-50	10" Electr'n	P-25	$\frac{5}{32}$ " Taper
B-1222	$\frac{1}{16}$ " 12 Pt Skt	B-40A	Flex Handle	SU-1222	$\frac{1}{16}$ " 12 Pt Uni	XOEE-610	$\frac{1}{32}$ "x $\frac{1}{32}$ " opng	DE-52	Pocket	P-28	$\frac{1}{4}$ " Taper
B-1224	$\frac{3}{4}$ " 12 Pt Skt	B-52	Ratchet	SU-1224	$\frac{3}{4}$ " 12 Pt Uni	XOEE-611	$\frac{1}{32}$ "x $\frac{1}{32}$ " opng	DP-1	Phillips #1	P-32	6" Prick
B-1226	$\frac{1}{16}$ " 12 Pt Skt	B-55	Reht Adapter	S-15A	Speeder	XOEE-612	$\frac{3}{8}$ "x $\frac{3}{8}$ " opng	DP-2	Phillips #2	P-40	5" Center
B-1228	$\frac{7}{8}$ " 12 Pt Skt	B-70	Reht Spinner	S-20A	Sliding Tee	OEE-1315	$\frac{1}{16}$ "x $\frac{1}{16}$ " opng	DP-3	Phillips #3	MISC. TOOLS	
B-1230	$\frac{1}{16}$ " 12 Pt Skt	B-101	1 $\frac{1}{2}$ " Ext'n	S-41A	Flex Handle	OEE-1416	$\frac{1}{4}$ "x $\frac{1}{4}$ " opng	DP-4	Phillips #4	HBP-5-0	4 oz Hammer
B-1232	1" 12 Pt Skt	B-108	3" Ext'n	S-52	Ratchet	OEE-1513	$\frac{1}{8}$ "x $\frac{1}{8}$ " opng	DP-62	Phillips #2	HBP-2-0	$\frac{3}{4}$ lb Hammer
BD-1212	$\frac{3}{8}$ " 12 Pt Dp	B-115	10 $\frac{1}{2}$ " Ext'n	S-55A	Reht Adapter	OEE-1614	$\frac{1}{4}$ "x $\frac{3}{16}$ " opng	DS-4	4" Sq Blade	HBP-4	2 lb Hammer
BD-1214	$\frac{3}{16}$ " 12 Pt Dp	B-140A	Universal Jt	S-102P	2 $\frac{1}{2}$ " Ext'n	OEE-1820	$\frac{5}{16}$ "x $\frac{5}{16}$ " opng	DS-6	6" Sq Blade	HSF-155	Hammer Body
BD-1216	$\frac{1}{2}$ " 12 Pt Dp	BFE-8	Flex Ext'n	S-110P	5 $\frac{1}{2}$ " Ext'n	OEE-2018	$\frac{1}{16}$ "x $\frac{1}{16}$ " opng	DS-8	8" Sq Blade	HSF-15H	Hard Tip
BD-1218	$\frac{9}{16}$ " 12 Pt Dp	1/2" DRIVE		S-115P	10 $\frac{1}{2}$ " Ext'n	OEE-2224	$\frac{1}{32}$ "x $\frac{3}{8}$ " opng	DS-12	12" Sq Blade	HSF-15S	Soft Tip
BD-1220	$\frac{5}{8}$ " 12 Pt Dp	ST-1212	$\frac{3}{8}$ " 12 Pt Skt	S-140A	Universal Jt	OEE-2422	$\frac{3}{8}$ "x $\frac{1}{32}$ " opng	DS-62	1 $\frac{1}{4}$ " Stubby	C-715	15" Roll Bar
BD-1222	$\frac{1}{16}$ " 12 Pt Dp	ST-1214	$\frac{3}{16}$ " 12 Pt Skt	STW-3RCF	Torque Wr	RATCHET BOX WRS		DPHG-1	Phillips #1	GS-3	Feeler Ga Set
BD-1224	$\frac{3}{4}$ " 12 Pt Dp	ST-1216	$\frac{1}{2}$ " 12 Pt Skt	.....	10-250 Ft Lb	RB-810	$\frac{1}{4}$ "x $\frac{5}{16}$ " opng	DPHG-2	Phillips #2	GS-7	Feeler Ga Set
BD-1226	$\frac{1}{16}$ " 12 Pt Dp	ST-1218	$\frac{9}{16}$ " 12 Pt Skt	.....	.....	RB-1214	$\frac{3}{8}$ "x $\frac{5}{16}$ " opng	DSHG-44	4" Screw Hld	WS-44A	13 Hex Key Wrs
BD-1228	$\frac{7}{8}$ " 12 Pt Dp	.....	.....	.....	.....	RB-1618	$\frac{1}{2}$ "x $\frac{9}{16}$ " opng	DSHG-46	4" Screw Hld		

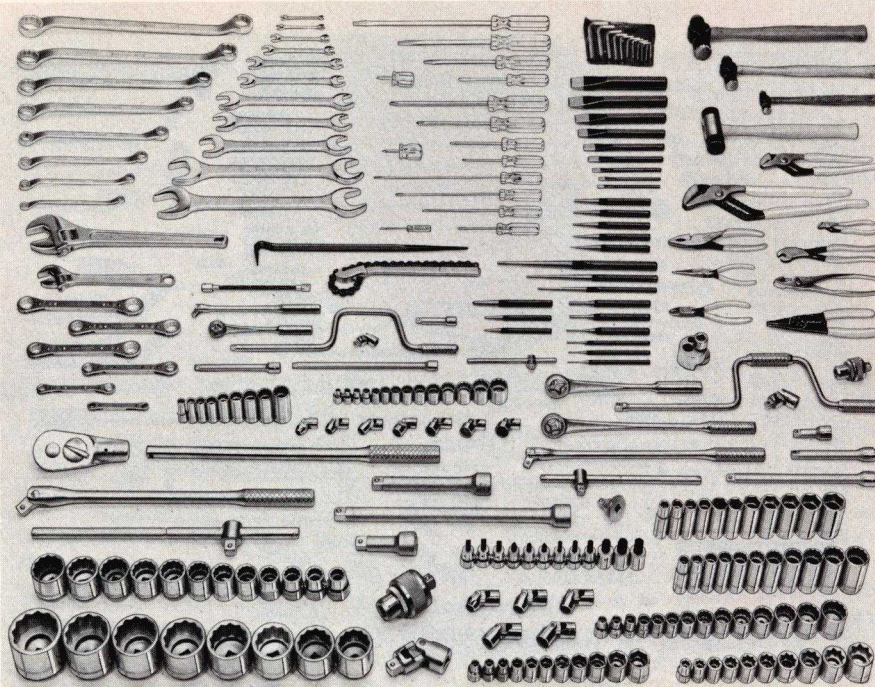


INDUSTRIAL MAINTENANCE MOBILE TOOL SETS

2 ALLOY SOCKETS AND SETS



TB-5001
Tool Chest
and
TC-501C
Roller Cabinet
furnished with
SET No. WSC-109AB

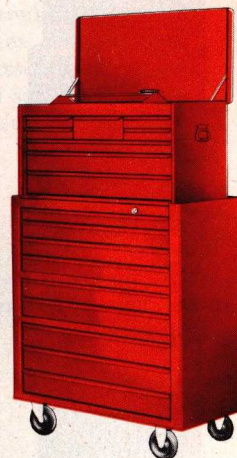


SET No. WSC-109AB
252 Tools in TB-5001 Chest
and TC-501C Roller Cabinet
Total Weight, 463.5 lbs.

SET No. WSC-109AC
252 Tools in TB-5002 Chest
and TC-502C Roller Cabinet
Total Weight, 489.5 lbs.

WSC-109AT
252 Tools
Only

Total Weight, 136.5 lbs.



TB-5002
Tool Chest
and
TC-502C
Mobile Cabinet
furnished with
SET No. WSC-109AC

Solve nut-turning and other maintenance problems in a jiffy with this array of 252 tools, all designed to perform with speed and safety. Add to this the convenience of a heavy duty industrial-

type mobile unit and you have a portable tool department that is unsurpassed. The accumulated seconds and minutes saved on each operation will soon add up to big dollar savings.

One Ea.	Description	One Ea.	Description	One Ea.	Description	One Ea.	Description	One Ea.	Description	One Ea.	Description
3/8" DRIVE		1/2" DRIVE		1/2" DRIVE		3/4" DRIVE		RATCHET BOX WRS		PUNCHES	
B-1208	1/4" 12 Pt Skt	ST-616	1/2" 6 Pt Skt	SD-1232	1" 12 Pt Dp	H-1224	3/4" 12 Pt Skt	RB-2022	5/8"x1 1/16" opng	P-28	1/4" Taper
B-1210	5/16" 12 Pt Skt	ST-618	9/16" 6 Pt Skt	SD-1234	1 1/16" 12 Pt Dp	H-1226	1 1/16" 12 Pt Skt	RB-2024	5/8"x3/4" opng	P-30	5" Prick
B-1211	1 1/32" 12 Pt Skt	ST-620	5/8" 6 Pt Skt	SD-1236	1 1/8" 12 Pt Dp	H-1228	7/8" 12 Pt Skt	RB-2428	3/4"x7/8" opng	P-40	5" Center
B-1212	3/8" 12 Pt Skt	ST-622	1 1/16" 6 Pt Skt	ST-812	3/8" 8 Pt Skt	H-1230	1 1/16" 12 Pt Skt	END WRENCHES		P-42	6" Center
B-1214	7/16" 12 Pt Skt	ST-624	3/4" 6 Pt Skt	ST-814	7/16" 8 Pt Skt	H-1232	1" 12 Pt Skt	1020	1/4"x5/16" opng	SCREWDRIVERS	
B-1216	1/2" 12 Pt Skt	ST-626	1 1/16" 6 Pt Skt	ST-816	1/2" 8 Pt Skt	H-1234	1 1/16" 12 Pt Skt	1720	3/16"x1 1/32" opng	DE-43	3" Electr'n
B-1218	9/16" 12 Pt Skt	ST-628	7/8" 6 Pt Skt	ST-818	9/16" 8 Pt Skt	H-1236	1 1/8" 12 Pt Skt	1723	3/8"x3/16" opng	DE-46	6" Electr'n
B-1220	5/8" 12 Pt Skt	ST-630	1 1/16" 6 Pt Skt	ST-820	3/8" 8 Pt Skt	H-1240	1 1/4" 12 Pt Skt	1725B	1/2"x9/16" opng	DE-48	8" Electr'n
B-1222	1 1/16" 12 Pt Skt	ST-632	1" 6 Pt Skt	ST-822	1 1/16" 8 Pt Skt	H-1242	1 1/2" 12 Pt Skt	1729	5/8"x3/4" opng	DE-50	10" Electr'n
B-1224	3/4" 12 Pt Skt	ST-1212	3/8" 12 Pt Skt	ST-824	3/4" 8 Pt Skt	H-1246	1 3/8" 12 Pt Skt	1029C	1 1/16"x1 1/16" opng	DE-52	2" Pocket
B-1226	1 1/16" 12 Pt Skt	ST-1214	1/2" 12 Pt Skt	ST-826	1 1/8" 8 Pt Skt	H-1248	1 1/2" 12 Pt Skt	1773	1 1/8"x1" opng	DP-1	Phillips #1
B-1228	7/8" 12 Pt Skt	ST-1216	1/2" 12 Pt Skt	ST-828	7/8" 8 Pt Skt	H-1252	1 5/8" 12 Pt Skt	1034A	1 1/8"x1 1/16" opng	DP-2	Phillips #2
B-1230	1 1/16" 12 Pt Skt	ST-1218	9/16" 12 Pt Skt	ST-832	1" 8 Pt Skt	H-1254	1 11/16" 12 Pt Skt	1737	1 1/8"x1 1/4" opng	DP-3	Phillips #3
B-1232	1" 12 Pt Skt	ST-1220	5/8" 12 Pt Skt	SA-8	1/2" Hex Bit Skt	H-1258	1 13/16" 12 Pt Skt	1039A	1 1/16"x1 1/2" opng	DP-4	Phillips #4
BD-1212	3/8" 12 Pt Dp	ST-1222	1 1/16" 12 Pt Skt	SA-10	3/8" Hex Bit Skt	H-1260	1 7/8" 12 Pt Skt	1041	1 1/16"x1 3/8" opng	DP-62	Phillips #2
BD-1214	7/16" 12 Pt Dp	ST-1224	3/4" 12 Pt Skt	SA-12	5/8" Hex Bit Skt	H-1264	2" 12 Pt Skt	ADJ. WRENCHES		DS-4	4" Sq Blade
BD-1216	1/2" 12 Pt Dp	ST-1226	1 1/16" 12 Pt Skt	SA-16	1 1/8" Hex Bit Skt	H-1266	2 1/8" 12 Pt Skt	AP-10A	10" Adj Wr	DS-6	6" Sq Blade
BD-1218	9/16" 12 Pt Dp	ST-1228	7/8" 12 Pt Skt	SA-18	9/16" Hex Bit Skt	H-1270	2 3/16" 12 Pt Skt	AP-15	15" Adj Wr	DS-8	8" Sq Blade
BD-1220	5/8" 12 Pt Dp	ST-1230	1 1/16" 12 Pt Skt	SA-20	5/8" Hex Bit Skt	H-1272	2 3/4" 12 Pt Skt	CHISELS		DS-12	12" Sq Blade
BD-1222	1 1/16" 12 Pt Dp	ST-1232	1" 12 Pt Skt	SA-10-2P	#2 Phillips S.B.	H-1276	2 3/8" 12 Pt Skt	C-8	1/4" Cold	DS-62	1 1/4" Stubby
BD-1224	3/4" 12 Pt Dp	ST-1234	1 1/16" 12 Pt Skt	SA-10-3P	#3 Phillips S.B.	H-A1	Handle	C-10	5/16" Cold	PLIERS	
BD-1226	1 1/16" 12 Pt Dp	ST-1236	1 1/8" 12 Pt Skt	SA-10-4P	#4 Phillips S.B.	H-20A	Sliding Tee	C-12	3/8" Cold	PL-8	8" Slip Jt
BD-1228	7/8" 12 Pt Dp	ST-1240	1 1/4" 12 Pt Skt	SA-10-2S	.040 Slot S. B.	H-41A	Flex Handle	C-16	1 1/2" Cold	PL-46C	6" Diag Cut
BU-1212	3/16" Univ Skt	SD-616	1/2" 6 Pt Dp	SA-10-3S	.045 Slot S. B.	H-51A	Ratchet	C-20	5/8" Cold	PL-67	7" Angle Nose
BU-1214	7/16" Univ Skt	SD-618	9/16" 6 Pt Dp	SA-10-4S	.055 Slot S. B.	H-55	Reht Adapter	C-24	3/4" Cold	PL-76C	6" Chain Nose
BU-1216	1/2" Univ Skt	SD-620	5/8" 6 Pt Dp	SU-1216	1/2" Univ Skt	H-104	4" Ext'n	C-28	3/8" Cold	PL-218C	Crimper
BU-1218	9/16" Univ Skt	SD-622	1 1/16" 6 Pt Dp	SU-1218	9/16" Univ Skt	H-110	8" Ext'n	C-32	1" Cold	PL-370C	7 1/2" Slip Jt
BU-1220	5/8" Univ Skt	SD-624	3/4" 6 Pt Dp	SU-1220	5/8" Univ Skt	H-115	15 1/2" Ext'n	C-36	1 1/8" Cold	PL-1519C	5" Superjoint
BU-1222	1 1/16" Univ Skt	SD-626	1 3/16" 6 Pt Dp	SU-1222	1 1/16" Univ Skt	H-140A	Universal Jt	PUNCHES		PL-1520C	10" Superjoint
BU-1224	3/4" Univ Skt	SD-628	7/8" 6 Pt Dp	SU-1224	3/4" Univ Skt	BOX WRENCHES		P-3	3/32"x6" Pin	PL-1522C	14" Superjoint
B-15	Speeder	SD-630	1 1/16" 6 Pt Dp	S-15A	Speeder	8723	3/8"x7/16" opng	P-4	1/2"x6" Pin	HAMMERS	
B-20A	Sliding Tee	SD-632	1" 6 Pt Dp	S-20A	Sliding Tee	8725B	1/2"x9/16" opng	P-5	5/32"x6" Pin	HBP-5-0	4 oz Hammer
B-40A	Flex Handle	SD-634	1 1/16" 6 Pt Dp	S-41A	Flex Handle	8727A	5/8"x1 1/16" opng	P-6	3/16"x6" Pin	HBP-2-0	3 1/2 lb Hammer
B-52	Ratchet	SD-636	1 1/8" 6 Pt Dp	S-52	11 1/4" Ratchet	8731	3/4"x1 1/16" opng	P-8	1/4"x6" Pin	HBP-4	13 lb Hammer
B-108	3" Ext'n	SD-1216	1 1/2" 12 Pt Dp	S-53	15" Ratchet	8733	7/8"x1" opng	P-10	3/16"x6" Pin	HSF-155	Hammer Body
B-110	6" Ext'n	SD-1218	9/16" 12 Pt Dp	S-55A	Reht Adapter	8034A	1 1/16"x1 1/16" opng	P-13	3/32"x6" Solid	HSF-15H	Hard Tip
B-115	10 1/2" Ext'n	SD-1220	5/8" 12 Pt Dp	S-60D	Stud Remover	8037A	1 1/8"x1 1/16" opng	P-14	1/8"x6" Solid	HSF-15S	Soft Tip
B-140A	Universal Jt	SD-1222	1 1/16" 12 Pt Dp	S-70	Reht Spinner	8039	1 1/4"x1 1/16" opng	P-15	5/32"x6" Solid	MISC. TOOLS	
BF-8	Flex Ext'n	SD-1224	3/4" 12 Pt Dp	S-102P	2 1/2" Ext'n	RATCHET BOX WRS		P-16	1/4"x6" Solid	C-715	15 1/2" Roll Bar
		SD-1226	1 1/16" 12 Pt Dp	S-110P	5 1/2" Ext'n	RB-810	1/4"x3/16" opng	P-17	1/4"x6" Solid	WS-44A	13 Hex Wrs
		SD-1228	7/8" 12 Pt Dp	S-115P	10 1/2" Ext'n	RB-1214	3/8"x3/16" opng	P-25	3/32" Taper	CW-4	Chain Wrench
		SD-1230	1 1/16" 12 Pt Dp	S-140A	Universal Jt	RB-1618	1/2"x9/16" opng	P-26	3/16" Taper		
ST-612	3/8" 6 Pt Skt										
ST-614	7/16" 6 Pt Skt										



HEAVY MACHINERY INSTALLATION and MAINTENANCE SET

SET No. WSC-6B

196 Tools in Mobile Tool Crib
TC-104C Platform

Plus TC-101 and TC-102 Cabinets

Total Weight, 626 lbs.

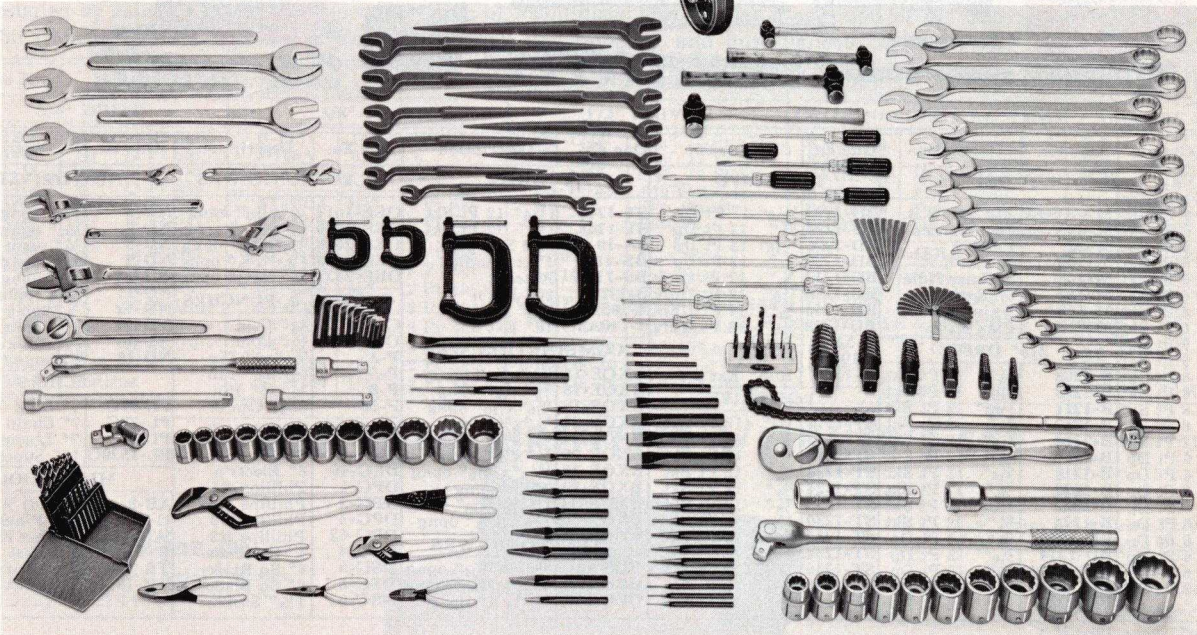
SET No. WSC-6BT

196 Tools Only

Total Weight, 327 lbs.



Especially designed for heavy installation, maintenance and repair work encountered in heavy industry and contracting fields. Range of socket and wrench openings from 1" thru 2 1/16" services all heavy series nuts and bolts from 5/8" to 1 1/2" diameter as well as most regular and finished series within this range. Styles of wrenches, adjustable, combination, open-end and structural are those proven most essential in this kind of work. Comprehensive selection of additional items assures having the right tool on the job at all times.



Add to this splendid array of tools the convenience of Williams Mobile Tool Crib and you have a ready-set-go department that brings a well supplied tool crib right to the job. Lost time going back and forth for missing or forgotten tools can be entirely eliminated.

TC-102 Cabinet has six drawers, TC-101 Cabinet has three drawers and large storage compartment so that tools can be conveniently segregated. There is plenty of extra space for special equipment and tools which a plant or contractor may wish to add for special requirements.

One Ea.	Description	One Ea.	Description	One Ea.	Description	One Ea.	Description	One Ea.	Description	One Ea.	Description
3/4" DRIVE		1" DRIVE		COMBINATION WRS		ADJ. WRENCHES		CHISELS		PUNCHES	
H-1232	1" 12 Pt Skt	X-1276	2 3/8" 12 Pt Skt	1188	1 7/8"x1 1/8" opng	AP-24	24" Adj Wr	C-10	5/16" Cold	P-26	3/16" Taper
H-1234	1 1/16" 12 Pt Skt	X-20B	20" Handle	1190	2"x2" opng	SCREWDRIVERS		C-12	3/8" Cold	P-28	1 1/2" Taper
H-1236	1 1/8" 12 Pt Skt	X-20C	Adapter-X-20B	END WRENCHES		DS-4	4" Sq Blade	C-16	1/2" Cold	P-30	5" Prick
H-1240	1 1/4" 12 Pt Skt	X-41	Flex Handle	1012A	2 1/16" opng	DS-6	6" Sq Blade	C-20	5/8" Cold	P-40	5" Center
H-1242	1 1/2" 12 Pt Skt	X-51	Ratchet	1013	2 3/16" opng	DS-8	8" Sq Blade	C-24	3/4" Cold	P-42	6" Center
H-1246	1 5/8" 12 Pt Skt	X-110	9" Ext'n	1013A	2 1/4" opng	DS-12	12" Sq Blade	C-28	7/8" Cold	HAMMERS	
H-1248	1 3/4" 12 Pt Skt	X-115	18" Ext'n	1014	2 5/8" opng	DS-62	1 1/4" Stubby	C-32	1" Cold	HBP-0	1 Pound
H-1252	1 7/8" 12 Pt Skt	COMBINATION WRS		1014A	2 1/2" opng	DRG-24	4" Rd Blade	C-36	1 1/8" Cold	HBP-2	1 1/2" Pound
H-1254	1 13/16" 12 Pt Skt	1161	3/16"x3 1/2" opng	STRUCTURAL WRS		DRG-26	6" Rd Blade	C-40	3/16" Cape	HBP-4	2 Pound
H-1258	1 11/16" 12 Pt Skt	1162	3/8"x1 1/2" opng	1905	3/8" opng	DRG-28	8" Rd Blade	C-42	1/4" Cape	HBP-6	2 1/2" Pound
H-1260	1 7/8" 12 Pt Skt	1163	3/16"x3 1/2" opng	1906B	1" opng	DRG-30	10" Rd Blade	C-44	5/16" Cape	MISC. TOOLS	
H-1264	2" 12 Pt Skt	1164	5/8"x3 1/2" opng	1907	1 1/16" opng	DRG-32	12" Rd Blade	C-46	3/8" Cape	C-80	14" Pinch Bar
H-41A	Flex Handle	1165	3/16"x1 1/2" opng	1907A	1 1/8" opng	DP-1	Phillips No. 1	C-62	3/8" Diamond	C-82	16" Pinch Bar
H-51	Ratchet	1166	3/4"x3 1/2" opng	1908	1 1/4" opng	DP-2	Phillips No. 2	C-72	1/2" Rd Nose	EXS-221	Extractor Set
H-104	4" Ext'n	1167A	1 1/8"x1 1/2" opng	1908A	1 1/2" opng	DP-3	Phillips No. 3	C-74	3/8" Rd Nose	EX-7	1/2" Extractor
H-110	8" Ext'n	1167	7/8"x1 1/2" opng	1909	1 1/2" opng	DP-4	Phillips No. 4	PUNCHES		EX-8	3/4" Extractor
H-115	15 1/2" Ext'n	1168	1 1/2"x1 1/2" opng	1909A	1 1/2" opng	DP-62	Phillips No. 2	P-3	3/32" Pin	EX-9	1" Extractor
H-140A	Universal Jt	1170	1"x1" opng	1910	1 1/8" opng	PLIERS		P-4	1/8" Pin	EX-10	1 1/4" Extractor
X-1234	1 1/16" 12 Pt Skt	1171	1 1/16"x1 1/2" opng	1910A	1 1/16" opng	PL-46C	6" Diag Cut	P-5	5/32" Pin	EX-11	1 1/2" Extractor
X-1236	1 1/8" 12 Pt Skt	1172	1 1/8"x1 1/2" opng	1911	1 1/8" opng	PL-76C	6" Chain Nose	P-6	3/16" Pin	EX-12	2" Extractor
X-1240	1 1/4" 12 Pt Skt	1173	1 1/4"x1 1/2" opng	1911A	1 1/8" opng	PL-218C	Crimper	P-8	1/4" Pin	(2)CC-402	2" C-Clamp
X-1242	1 1/2" 12 Pt Skt	1174	1 1/2"x1 1/2" opng	1912	2" opng	PL-370C	7 1/2" Slip Jt	P-10	3/16" Pin	(2)CC-406	6" C-Clamp
X-1246	1 5/8" 12 Pt Skt	1176A	1 5/8"x1 1/2" opng	ADJ. WRENCHES		PL-1519C	5" Super Jt	P-13	3/32" Solid	WS-44A	13 Hex Wrs
X-1248	1 3/4" 12 Pt Skt	1176	1 3/4"x1 1/2" opng	AP-10A	10" Adj Wr	PL-1520C	10" Super Jt	P-14	1/8" Solid	TDS-15	15 H. S. Drills
X-1248	1 1/2" 12 Pt Skt	1178	1 1/2"x1 1/2" opng	AP-12	12" Adj Wr	PL-1522C	14" Super Jt	P-15	5/32" Solid	GS-1	
X-1252	1 5/8" 12 Pt Skt	1180	1 5/8"x1 1/2" opng	AP-15	15" Adj Wr	CHISELS		P-16	3/16" Solid	GS-4	Master Gauge
X-1258	1 13/16" 12 Pt Skt	1182	1 13/16"x1 1/2" opng	AP-18	18" Adj Wr	C-8	1/4" Cold	P-17	1/4" Solid	CW-4	Piston Gauge
X-1264	2" 12 Pt Skt	1184	1 3/4"x1 1/2" opng								
X-1270	2 3/16" 12 Pt Skt	1186	1 13/16"x1 1/2" opng								



RAILROAD ELECTRICIAN'S SET

SET No. WSRR-200

141 Tools in TB-8T Metal Tool Box
Total Weight, 49.5 lbs.

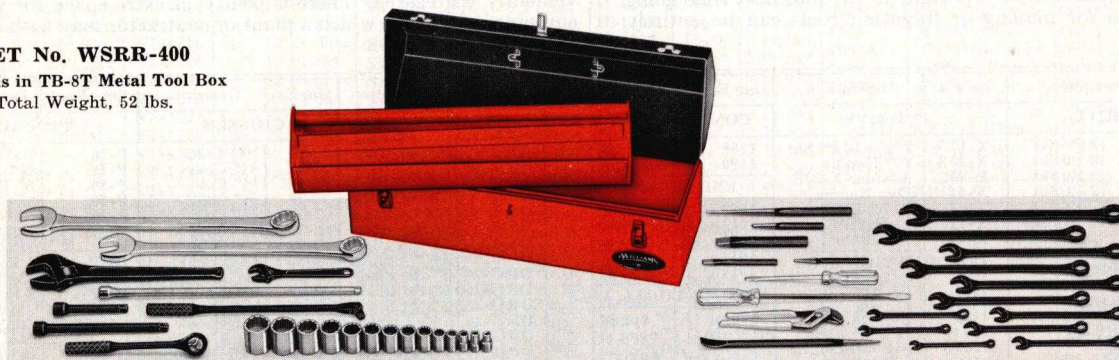


One Ea.	Description	One Ea.	Description	One Ea.	Description	One Ea.	Description	One Ea.	Description	One Ea.	Description
1/4" DRIVE		1/4" DRIVE		3/8" DRIVE		1/2" DRIVE		ELECTRONIC WRS		NUT DRIVERS	
M-408	1/4" 4 Pt Skt	MA-10-1S	.032 Slot S.B.	BD-1222	11/16" 12 Pt Dp	ST-1246	17/16" 12 Pt Skt	OEE-1614	1/4"x7/32" opng	ND-6	3/16" opng
M-604	1/8" 6 Pt Skt	M-42A	Flex Handle	BD-1224	3/4" 12 Pt Dp	ST-1248	11/2" 12 Pt Skt	OEE-1820	9/32"x3/16" opng	ND-7	7/32" opng
M-605	3/32" 6 Pt Skt	M-52	Ratchet	BD-1226	13/16" 12 Pt Dp	SA-10-2S	.040 Slot S.B.	OEE-2018	5/16"x9/32" opng	ND-8	1/4" opng
M-606	9/16" 6 Pt Skt	M-102	2" Ext'n	BD-1228	7/8" 12 Pt Dp	BS-41A	Flex Handle	OEE-2224	11/32"x3/8" opng	ND-9	9/32" opng
M-607	7/32" 6 Pt Skt	M-106	Spinner Hdle	BU-1212	3/8" 12 Pt Univ	BS-71	Ratchet	OEE-2422	3/8"x11/32" opng	ND-10	5/16" opng
M-608	1/4" 6 Pt Skt	M-115	6" Ext'n	BU-1214	1/2" 12 Pt Univ	S-121P	20" Ext'n	CHISELS & PUNCHES		ND-11	11/32" opng
M-609	9/32" 6 Pt Skt	M-140A	Universal Jt	BU-1216	1/2" 12 Pt Univ	4-105A	5 1/2" Ext'n	C-8	1/4" Cold	ND-12	3/8" opng
M-610	9/16" 6 Pt Skt	MFE-6	Flex Ext'n	BU-1218	9/16" 12 Pt Univ	4-110A	10" Ext'n	C-20	5/8" Cold	ND-14	7/16" opng
M-611	11/32" 6 Pt Skt			B-52	Ratchet	COMBINATION WRS		P-3	3/32"x6" Pin	ND-16	1/2" opng
M-612	3/8" 6 Pt Skt			2-106A	6" Ext'n	BXOE-14	7/16"x7/16" opng	P-5	5/32"x6" Pin	ND-18	9/16" opng
M-614	7/16" 6 Pt Skt			B-115	10 1/2" Ext'n	BXOE-16	1/2"x1/2" opng	P-8	1/4"x6" Pin	PLIERS	
M-616	1/2" 6 Pt Skt			1/2" DRIVE		BXOE-18	9/16"x9/16" opng	P-38	3 1/2" Center	PL-57C	7" Diag Cut
M-810	5/16" 8 Pt Skt	B-1208	1/4" 12 Pt Skt	ST-1214	7/16" 12 Pt Skt	BXOE-20	5/8"x5/8" opng	SCREWDRIVERS		PL-207	7" Chain Nose
M-812	3/8" 8 Pt Skt	B-1210	11/32" 12 Pt Skt	ST-1216	1/2" 12 Pt Skt	BXOE-24	3/4"x3/4" opng	DEG-43	3" Electr'n	PL-1520C	10" Superjoint
M-1218	5/16" 12 Pt Skt	B-1211	3/8" 12 Pt Skt	ST-1218	9/16" 12 Pt Skt	BXOE-28	7/8"x7/8" opng	DEG-46	6" Electr'n	MISC. TOOLS	
MD-606	5/16" 6 Pt Dp	B-1212	1/2" 12 Pt Skt	ST-1220	5/8" 12 Pt Skt	BXOE-30	15/16"x15/16" opng	DPG-1	Phillips #1	AB-8	8" Adj Wr
MD-608	1/4" 6 Pt Dp	B-1214	5/16" 12 Pt Skt	ST-1224	3/4" 12 Pt Skt	BXOE-32	1"x1" opng	DPG-2	Phillips #2	C-80	14" Pinch Bar
MD-609	9/32" 6 Pt Dp	B-1216	3/8" 12 Pt Skt	ST-1228	7/8" 12 Pt Skt	BXOE-34	1 1/16"x1 1/16" opng	DPG-3	Phillips #3	WS-44A	13 Hex Key Wrs
MD-610	5/16" 6 Pt Dp	B-1220	5/8" 12 Pt Skt	ST-1232	1" 12 Pt Skt	BXOE-36	1 1/8"x1 1/8" opng	DPG-62	Phillips #2	K-21	8 Pocket Kit
MD-611	11/32" 6 Pt Dp	B-1222	11/16" 12 Pt Skt	ST-1234	1 1/16" 12 Pt Skt	ELECTRONIC WRS		DSG-4	4" Sq Blade	TB-2A	Tool Box
MD-612	3/8" 6 Pt Dp	BD-1212	3/8" 12 Pt Dp	ST-1236	1 1/8" 12 Pt Skt	OEE-1315	13/64"x1 5/64" opng	DSG-6	6" Sq Blade	TB-16	Tool Box
MD-614	7/16" 6 Pt Dp	BD-1214	1/2" 12 Pt Dp	ST-1240	1 1/4" 12 Pt Skt	OEE-1513	15/64"x1 3/64" opng	DSG-8	8" Sq Blade		
MD-616	1/2" 6 Pt Dp	BD-1216	1/2" 12 Pt Dp	ST-1242	1 5/16" 12 Pt Skt	OEE-1416	7/32"x3/4" opng	DSG-62	1 1/4" Stubby		
MD-1218	9/16" 12 Pt Dp	BD-1218	9/16" 12 Pt Dp								
.....	.....	BD-1220	5/8" 12 Pt Dp								

RAILROAD CARMAN'S SET

SET No. WSRR-400

44 Tools in TB-8T Metal Tool Box
Total Weight, 52 lbs.



One Ea.	Description	One Ea.	Description	One Ea.	Description	One Ea.	Description	One Ea.	Description	One Ea.	Description
1/2" DRIVE		1/2" DRIVE		1/2" DRIVE		COMBINATION WRS		COMBINATION WRS		CHISELS & PUNCHES	
ST-1214	7/16" 12 Pt Skt	ST-1234	1 1/16" 12 Pt Skt	S-121P	20" Ext'n	BXOE-20	5/8"x5/8" opng	1176	1 7/16"x1 7/16" opng	P-42	6" Center
ST-1216	1/2" 12 Pt Skt	ST-1236	1 1/8" 12 Pt Skt	4-105A	5 1/2" Ext'n	BXOE-22	1 1/16"x1 1/16" opng	1180	1 5/8"x1 5/8" opng	MISC. TOOLS	
ST-1218	9/16" 12 Pt Skt	ST-1240	1 1/4" 12 Pt Skt	4-110A	10" Ext'n	BXOE-24	3/4"x3/4" opng	CHISELS & PUNCHES		AB-8	8" Adj Wr
ST-1220	5/8" 12 Pt Skt	ST-1242	1 5/16" 12 Pt Skt	COMBINATION WRS		BXOE-28	7/8"x7/8" opng	C-16	1/2" Cold	AB-15	15" Adj Wr
ST-1224	3/4" 12 Pt Skt	ST-1246	1 7/16" 12 Pt Skt	BXOE-30	15/16"x15/16" opng	BXOE-32	1"x1" opng	C-28	7/8" Cold	C-80	14" Pinch Bar
ST-1228	7/8" 12 Pt Skt	ST-1248	1 1/2" 12 Pt Skt	BXOE-34	1 1/16"x1 1/16" opng	BXOE-36	1 1/8"x1 1/8" opng	C-40	3/16" Cape	DS-6	6" Sq Blade
ST-1230	1 3/16" 12 Pt Skt	BS-41A	Flex Handle	BXOE-18	9/16"x9/16" opng	BXOE-40	1 1/4"x1 1/4" opng	P-28	3/4" Taper	DS-12	12" Sq Blade
ST-1232	1" 12 Pt Skt	BS-71	Ratchet							PL-1520C	10" Superjoint



RAILROAD MACHINIST'S SET

SET No. WSRR-100

75 Tools in TB-8T Metal Tool Box
Total Weight, 44.7 lbs.



3/8" Drive — 3 Drive Parts, 14 Sockets
1/2" Drive — 6 Drive Parts, 14 Sockets
10 Combination Wrenches — 2 Pliers
6 Chisels and Punches — 4 Screwdrivers
16 Miscellaneous Tools

Designed by railroad officials to meet the needs of machinists, this set has a selection of 3/8" and 1/2" drive tools plus the right combination of wrenches, pliers, screwdrivers, chisels and punches, and miscellaneous tools.

One Ea.	Description	One Ea.	Description	One Ea.	Description	One Ea.	Description	One Ea.	Description
3/8" DRIVE		3/8" DRIVE		1/2" DRIVE		COMBINATION WRENCHES		CHISELS & PUNCHES	
B-1208	1/4" 12 Pt Skt	B-115	10 1/2" Ext'n	ST-1242	1 1/16" 12 Pt Skt	BXOE-24	3/4" x 3/4" opng	P-5	5/32" x 6" Pin
B-1210	5/16" 12 Pt Skt	2-106A	6" Ext'n	ST-1246	1 1/16" 12 Pt Skt	BXOE-28	7/8" x 7/8" opng	P-8	3/4" x 6" Pin
B-1211	11/32" 12 Pt Skt	1/2" DRIVE		ST-1248	1 1/2" 12 Pt Skt	BXOE-30	1 5/16" x 1 5/16" opng	P-40	5" Center
B-1212	3/8" 12 Pt Skt	ST-1214	7/16" 12 Pt Skt	SA-10-2S	.040 Slot S.B.	BXOE-32	1" x 1" opng	SCREWDRIVERS	
B-1214	7/16" 12 Pt Skt	ST-1216	1/2" 12 Pt Skt	BS-41A	Flex Handle	BXOE-34	1 1/16" x 1 1/16" opng	DSG-4	4" Sq Blade
B-1216	1/2" 12 Pt Skt	ST-1218	9/16" 12 Pt Skt	BS-71	Ratchet	BXOE-36	1 1/8" x 1 1/8" opng	DSG-6	6" Sq Blade
B-1218	9/16" 12 Pt Skt	ST-1220	5/8" 12 Pt Skt	S-121P	20" Ext'n	PLIERS		DSG-8	8" Sq Blade
B-1220	5/8" 12 Pt Skt	ST-1222	3/4" 12 Pt Skt	4-105A	5 1/2" Ext'n	PL-57C	7" Diag Cut	DSG-62	1 1/4" Stubby
B-1222	11/16" 12 Pt Skt	ST-1228	7/8" 12 Pt Skt	4-110A	10" Ext'n	PL-370C	7 1/2" Slip Jt	MISC. TOOLS	
B-1224	3/4" 12 Pt Skt	ST-1230	15/16" 12 Pt Skt	COMBINATION WRENCHES		CHISELS & PUNCHES		AB-8	8" Adj Wr
BU-1212	3/8" 12 Pt Univ	ST-1232	1" 12 Pt Skt	BXOE-14	7/16" x 7/16" opng	C-16	6" Cold	C-718	18" Roll Bar
BU-1214	7/16" 12 Pt Univ	ST-1234	1 1/16" 12 Pt Skt	BXOE-18	9/16" x 9/16" opng	C-40	6" Cape	RB-2428	3/4" x 7/8" opng
BU-1216	1/2" 12 Pt Univ	ST-1236	1 1/8" 12 Pt Skt	BXOE-20	5/8" x 5/8" opng	P-3	3/32" x 6" Pin	WS-44A	13 Hex Key Wrs
BU-1218	9/16" 12 Pt Univ	ST-1240	1 1/4" 12 Pt Skt					TB-2A	Tool Box
B-52	Ratchet								

RAILROAD PIPEFITTER'S/TINNER'S SET

SET No. WSRR-300

72 Tools in TB-8T Metal Tool Box
Total Weight, 47.7 lbs.



3/8" Drive — 3 Drive Parts, 14 Sockets
1/2" Drive — 4 Drive Parts, 14 Sockets
10 Flare Nut Wrenches — 3 Pliers
10 Combination Wrenches — 5 Screwdrivers
7 Chisels and Punches
2 Miscellaneous Tools

Here's a special selection of tools for the pipefitter/tinner that's been railroad selected. This set features, flare nut wrenches with openings from 7/16" to 1 1/8" backed up by a tool complement suited to the need.

One Ea.	Description	One Ea.	Description	One Ea.	Description	One Ea.	Description	One Ea.	Description
3/8" DRIVE		1/2" DRIVE		1/2" DRIVE		COMBINATION WRENCHES		SCREWDRIVERS	
B-1208	1/4" 12 Pt Skt	ST-1214	7/16" 12 Pt Skt	4-110A	10" Ext'n	BXOE-24	3/4" x 3/4" opng	DSG-6	6" Sq Blade
B-1210	5/16" 12 Pt Skt	ST-1216	1/2" 12 Pt Skt	COMBINATION WRENCHES		BXOE-28	7/8" x 7/8" opng	DSG-8	8" Sq Blade
B-1211	11/32" 12 Pt Skt	ST-1218	9/16" 12 Pt Skt	1314	7/16" opngs	BXOE-30	1 5/16" x 1 5/16" opng	DSG-62	1 1/4" Stubby
B-1212	3/8" 12 Pt Skt	ST-1220	5/8" 12 Pt Skt	1316	1/2" opngs	BXOE-32	1" x 1" opng	CHISELS & PUNCHES	
B-1214	7/16" 12 Pt Skt	ST-1222	3/4" 12 Pt Skt	1318	9/16" opngs	BXOE-34	1 1/16" x 1 1/16" opng	C-12	3/8" Cold
B-1216	1/2" 12 Pt Skt	ST-1228	7/8" 12 Pt Skt	1320	5/8" opngs	BXOE-36	1 1/8" x 1 1/8" opng	C-24	3/4" Cold
B-1218	9/16" 12 Pt Skt	ST-1230	15/16" 12 Pt Skt	1322	1 1/16" opngs	PLIERS		C-40	3/16" Cape
B-1220	5/8" 12 Pt Skt	ST-1232	1" 12 Pt Skt	1324	3/4" opngs	PL-57C	7" Diag Cut	P-4	1 1/8" x 6" Pin
B-1222	11/16" 12 Pt Skt	ST-1234	1 1/16" 12 Pt Skt	1328	7/8" opngs	PL-370C	7 1/2" Slip Jt	P-6	3/8" x 6" Pin
B-1224	3/4" 12 Pt Skt	ST-1236	1 1/8" 12 Pt Skt	1332	1" opngs	PL-1520C	10" Superjoint	P-8	1 1/4" x 6" Pin
BU-1212	3/8" 12 Pt Univ	ST-1240	1 1/4" 12 Pt Skt	1334	1 1/16" opngs	SCREWDRIVERS		P-42	6" Center
BU-1214	7/16" 12 Pt Univ	ST-1242	1 1/16" 12 Pt Skt	1336	1 1/8" opngs	DP-62	Phillips #2	MISC. TOOLS	
BU-1216	1/2" 12 Pt Univ	ST-1246	1 7/16" 12 Pt Skt	BXOE-14	7/16" x 7/16" opng	DSG-4	4" Sq Blade	AB-8	8" Adj Wr
BU-1218	9/16" 12 Pt Univ	ST-1248	1 1/2" 12 Pt Skt	BXOE-16	1/2" x 1/2" opng			C-718	18" Roll Bar
B-52	Ratchet	BS-41A	Flex Handle	BXOE-18	9/16" x 9/16" opng			TB-2A	Tool Box
B-115	10 1/2" Ext'n	BS-71	Ratchet	BXOE-20	5/8" x 5/8" opng				
2-106A	6" Ext'n	4-105A	5 1/2" Ext'n						

HEAVY DUTY METAL CHESTS

Williams heavy duty chests are designed and manufactured to meet industrial requirements. Extra reinforcing at all critical points assures years of trouble free service under heavy loads. Extreme rigidity and heavy duty locking systems offer maxi-

mum security against pilferage. Covers, doors, sides, bottoms, backs, drawers and dividers are made of 20 gauge steel. Corner reinforcements made of 18 gauge steel, skid rails of 22 gauge steel. Finished in red baked-on enamel.

2
ALLOY
SOCKETS
AND
SETS



No. TB-1001

3 Drawer Metal Chest

Total Weight, 36 lbs.

Overall Dimensions

22 $\frac{3}{8}$ " wide, 10 $\frac{1}{8}$ " deep, 10" high

Description	Inside Dimensions		
	Width	Depth	Hght.
1 Top Drawer	20 $\frac{1}{8}$ "	8 $\frac{3}{4}$ "	1 $\frac{3}{8}$ "
1 Middle Drawer	20 $\frac{1}{4}$ "	8 $\frac{3}{4}$ "	1 $\frac{3}{4}$ "
1 Bottom Drawer	20 $\frac{1}{4}$ "	8 $\frac{3}{4}$ "	2 $\frac{1}{2}$ "
1 Tote Tray	18 $\frac{1}{2}$ "	7 $\frac{1}{2}$ "	2"
1 Top Compartment	20 $\frac{1}{4}$ "	9 $\frac{3}{8}$ "	2 $\frac{3}{8}$ "
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No. TB-2001

6 Drawer Metal Chest

Total Weight, 66 lbs.

Overall Dimensions

25 $\frac{3}{8}$ " wide, 12 $\frac{1}{8}$ " deep, 14 $\frac{1}{2}$ " high

Description	Inside Dimensions		
	Width	Depth	Hght.
3 Top Drawers	7 $\frac{1}{8}$ "	10 $\frac{1}{2}$ "	1 $\frac{3}{4}$ "
2 Middle Drawers	23 $\frac{3}{8}$ "	10 $\frac{1}{2}$ "	1 $\frac{3}{4}$ "
1 Bottom Drawer	23 $\frac{3}{8}$ "	10 $\frac{1}{2}$ "	3 $\frac{1}{4}$ "
1 Tote Tray	18 $\frac{1}{2}$ "	7 $\frac{1}{2}$ "	2"
1 Top Compartment	25 $\frac{1}{2}$ "	11 $\frac{1}{2}$ "	4 $\frac{1}{8}$ "
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No. TB-2002

7 Drawer Metal Chest

Total Weight, 66 lbs.

Overall Dimensions

25 $\frac{3}{8}$ " wide, 12 $\frac{1}{8}$ " deep, 14 $\frac{1}{2}$ " high

Description	Inside Dimensions		
	Width	Depth	Hght.
4 Top Drawers	7 $\frac{1}{8}$ "	10 $\frac{1}{2}$ "	1 $\frac{3}{4}$ "
1 Top Center Drawer	7 $\frac{1}{8}$ "	10 $\frac{1}{2}$ "	3 $\frac{1}{4}$ "
1 Middle Drawer	23 $\frac{3}{8}$ "	10 $\frac{1}{2}$ "	1 $\frac{3}{4}$ "
1 Bottom Drawer	23 $\frac{3}{8}$ "	10 $\frac{1}{2}$ "	3 $\frac{1}{4}$ "
1 Tote Tray	18 $\frac{1}{2}$ "	7 $\frac{1}{2}$ "	2"
1 Top Compartment	25 $\frac{1}{2}$ "	11 $\frac{1}{2}$ "	4 $\frac{1}{8}$ "
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No. TB-3001

3 Drawer Intermediate Chest

Total Weight, 29.8 lbs.

Overall Dimensions

26" wide, 12 $\frac{1}{8}$ " deep, 8 $\frac{3}{8}$ " high

Description	Inside Dimensions		
	Width	Depth	Hght.
2 Top Drawers	23 $\frac{3}{4}$ "	10 $\frac{1}{2}$ "	1 $\frac{3}{4}$ "
1 Bottom Drawer	23 $\frac{3}{4}$ "	10 $\frac{1}{2}$ "	3 $\frac{1}{8}$ "

While adding only 8 $\frac{3}{4}$ " to height, this chest substantially increases storage space when used under TB-2001, TB-2002 and TB-4001 chests.



No. TB-4001

11 Drawer Metal Chest

Total Weight, 89 lbs.

Overall Dimensions

25 $\frac{3}{8}$ " wide, 12 $\frac{1}{8}$ " deep, 18 $\frac{1}{8}$ " high

Description	Inside Dimensions		
	Width	Depth	Hght.
7 Top Drawers	7 $\frac{1}{8}$ "	10 $\frac{1}{2}$ "	1 $\frac{3}{4}$ "
1 Top Center Drawer	7 $\frac{1}{8}$ "	10 $\frac{1}{2}$ "	3 $\frac{1}{4}$ "
2 Middle Drawers	23 $\frac{3}{8}$ "	10 $\frac{1}{2}$ "	1 $\frac{3}{4}$ "
1 Bottom Drawer	23 $\frac{3}{8}$ "	10 $\frac{1}{2}$ "	3 $\frac{1}{4}$ "
1 Tote Tray	18 $\frac{1}{2}$ "	7 $\frac{1}{2}$ "	2"
1 Top Compartment	25 $\frac{1}{2}$ "	11 $\frac{1}{2}$ "	4 $\frac{1}{8}$ "
.....
.....

HEAVY DUTY ROLLER CABINETS

Tops and bases are made of 16 gauge steel. Horizontal stiffener, sides and two bottom reinforcing channels are made of 18 gauge steel. Drawers, dividers, backs and doors made of 20 gauge steel. Lock rod, $\frac{1}{8}$ " x $1\frac{1}{8}$ ", is actuated by cylinder lock to secure all

drawers. Each 4" diameter x 1" wide caster has a load capacity rating of 125 lbs. Cabinets are furnished with pull handle and a 24 hole screwdriver or tool rack. Red baked enamel finish.



No. TC-101C

3 Drawer Roller Cabinet With Casters

Total Weight, 102 lbs.

No. TC-101

3 Drawer Roller Cabinet Without Casters

Total Weight, 96 lbs.

Overall Dimensions
26 $\frac{3}{8}$ " wide, 18" deep,
31 $\frac{3}{8}$ " high with casters,
27" high without casters

Description	Inside Dimensions		
	Width	Depth	Hght.
3 Top Drawers	21 $\frac{1}{4}$ "	17"	3 $\frac{3}{4}$ "
Bottom Compartment	26"	17"	9 $\frac{1}{2}$ "



No. TC-102C

6 Drawer Roller Cabinet With Casters

Total Weight, 127 lbs.

No. TC-102

6 Drawer Roller Cabinet Without Casters

Total Weight, 121 lbs.

Overall Dimensions
26 $\frac{3}{8}$ " wide, 18" deep,
31 $\frac{3}{8}$ " high with casters,
27" high without casters

Description	Inside Dimensions		
	Width	Depth	Hght.
4 Top Drawers	21 $\frac{1}{4}$ "	17"	2 $\frac{3}{4}$ "
2 Bottom Drawers	21 $\frac{1}{4}$ "	17"	4 $\frac{7}{8}$ "



No. TC-105C

5 Drawer Roller Cabinet With Casters

Total Weight, 127 lbs.

No. TC-105

5 Drawer Roller Cabinet Without Casters

Total Weight, 121 lbs.

Overall Dimensions
26 $\frac{3}{8}$ " wide, 18" deep,
31 $\frac{3}{8}$ " high with casters,
27" high without casters

Description	Inside Dimensions		
	Width	Depth	Hght.
4 Top Drawers	21 $\frac{1}{4}$ "	17"	2 $\frac{3}{4}$ "
1 Bottom Drawer	21 $\frac{1}{4}$ "	17"	10 $\frac{3}{8}$ "



No. TC-103C

Open Roller Stand With Casters

Total Weight, 68 lbs.

No. TC-103

Open Roller Stand Without Casters

Total Weight, 62 lbs.

Overall Dimensions
26 $\frac{3}{8}$ " wide, 18" deep,
31 $\frac{3}{8}$ " high with casters,
27" high without casters

Space is divided equally by middle shelf. Well constructed, has hundreds of uses.



No. TC-201C

11 Drawer Roller Cabinet With Casters

Total Weight, 203 lbs.

Overall Dimensions
26 $\frac{3}{8}$ " wide, 18" deep,
40 $\frac{1}{4}$ " high with casters,
35 $\frac{3}{8}$ " high without casters

Description	Inside Dimensions		
	Width	Depth	Hght.
4 Small Drawers	6 $\frac{3}{8}$ "	16 $\frac{5}{8}$ "	1 $\frac{7}{8}$ "
1 Center Drawer	6 $\frac{3}{8}$ "	16 $\frac{5}{8}$ "	3 $\frac{7}{8}$ "
1 Wide Top Drawer	21 $\frac{1}{4}$ "	16 $\frac{5}{8}$ "	1 $\frac{7}{8}$ "
1 Work Shelf	21 $\frac{1}{2}$ "	16 $\frac{1}{2}$"	.....
4 Lower Drawers	21 $\frac{1}{4}$ "	17"	2 $\frac{3}{4}$ "
1 Bottom Drawer	21 $\frac{1}{4}$ "	17"	10 $\frac{3}{8}$ "



EXTRA HEAVY DUTY METAL CHESTS and ROLLER CABINETS

CHESTS

Extra heavy construction and reinforcement throughout. Covers, doors, sides, bottoms, backs, drawers and dividers are made of 20 gauge steel, corner reinforcements of 18 gauge steel, skid rails of 22 gauge steel. Two bottom drawers have dual cadmium plated runners for ease of operation under heavy loads.

TB-5001



TC-501C

Description	Inside Dimensions		
	Width	Depth	Height

No. TB-5001

7 Drawer Metal Chest

Total Weight, 118 lbs.

Overall, 31" wide, 16 $\frac{1}{4}$ " deep, 18 $\frac{1}{2}$ " high

3 Top Drawers	8 $\frac{7}{8}$ "	14 $\frac{1}{2}$ "	1 $\frac{3}{4}$ "
2 Middle Drawers	28 $\frac{3}{4}$ "	14 $\frac{1}{2}$ "	1 $\frac{3}{4}$ "
1 Middle Drawer	28 $\frac{3}{4}$ "	14 $\frac{1}{2}$ "	3 $\frac{1}{4}$ "
1 Bottom Drawer	28 $\frac{3}{4}$ "	14 $\frac{1}{2}$ "	3 $\frac{1}{4}$ "
Top Compartment	30 $\frac{3}{4}$ "	15 $\frac{3}{8}$ "	3 $\frac{7}{8}$ "

No. TC-501C

6 Drawer Roller Cabinet

Total Weight, 209 lbs.

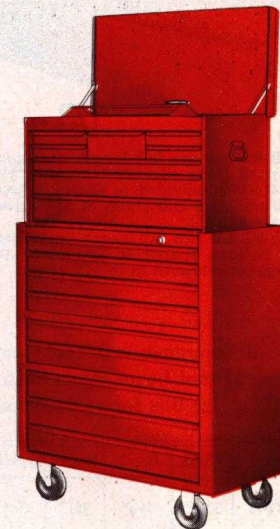
Overall, 34" wide, 19 $\frac{1}{8}$ " deep, 41 $\frac{1}{4}$ " high including casters

1 Top Drawer	29"	18"	1 $\frac{7}{8}$ "
3 Upper Middle Drawers	29"	18"	2 $\frac{5}{8}$ "
2 Lower Middle Drawers	29"	18"	3"
Bottom Compartment	33 $\frac{3}{4}$ "	18"	12 $\frac{1}{4}$ "

ROLLER CABINETS

Tops and bases made of 16 gauge steel. Horizontal stiffeners, sides, backs and five bottom reinforcing channels are made of 18 gauge steel. Drawers, dividers and doors, 20 gauge steel. Composition caster wheels, 5" diameter x 1" wide, each have a load capacity rating of 175 lbs. Drawers, 3 $\frac{3}{4}$ " high, have dual runners.

TB-5002



TC-502C

Description	Inside Dimensions		
	Width	Depth	Height

No. TB-5002

8 Drawer Metal Chest

Total Weight, 118 lbs.

Overall, 31" wide, 16 $\frac{1}{4}$ " deep, 18 $\frac{1}{2}$ " high

4 Top Drawers	8 $\frac{7}{8}$ "	14 $\frac{1}{2}$ "	1 $\frac{3}{4}$ "
1 Top Center Drawer	8 $\frac{7}{8}$ "	14 $\frac{1}{2}$ "	3 $\frac{3}{4}$ "
1 Middle Drawer	28 $\frac{3}{4}$ "	14 $\frac{1}{2}$ "	1 $\frac{3}{4}$ "
1 Middle Drawer	28 $\frac{3}{4}$ "	14 $\frac{1}{2}$ "	3 $\frac{1}{4}$ "
1 Bottom Drawer	28 $\frac{3}{4}$ "	14 $\frac{1}{2}$ "	3 $\frac{1}{4}$ "
Top Compartment	30 $\frac{3}{4}$ "	15 $\frac{3}{8}$ "	3 $\frac{7}{8}$ "

No. TC-502C

9 Drawer Roller Cabinet

Total Weight, 235 lbs.

Overall, 34" wide, 19 $\frac{1}{8}$ " deep, 41 $\frac{1}{4}$ " high, including casters

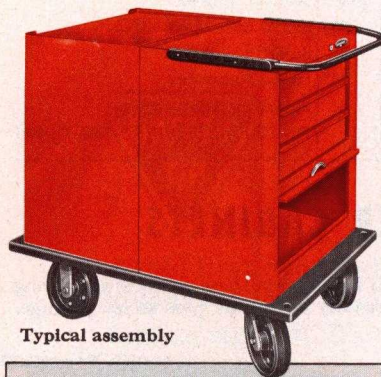
1 Top Drawer	29"	18"	1 $\frac{7}{8}$ "
3 Upper Middle Drawers	29"	18"	2 $\frac{5}{8}$ "
2 Lower Middle Drawers	29"	18"	3"
3 Bottom Drawers	29"	18"	3 $\frac{3}{4}$ "

MOBILE TOOL CRIB ASSEMBLY UNITS

14 CABINET COMBINATIONS

Here is the answer to a wide variety of plant maintenance and installation problems . . . brings a complete

tool crib right to the job . . . eliminates back-and-forth lost time for "forgotten" tools.



Typical assembly

Heavy steel platform pre-drilled to receive any one of 14 cabinet combinations.

Heavy duty construction features 12 gauge steel platform mounted on two swivel and two rigid 8" composition-tired casters equipped with ball bearings and lubrication fittings. Platform 27 $\frac{1}{4}$ " wide by 40 $\frac{3}{4}$ " long affords adequate clearance for pushing through swinging plant doors. Designed with push bar for hand transportation . . . cable holes in platform for towing . . . and ample clearance for lifting with fork truck.

Make your selection from combinations illustrated below.

No. TC-104C Platform Unit

Total Weight, 82.5 lbs.



For 3-drawer cabinet arrangement order TC-104C and TC-101.	For 6-drawer cabinet arrangement order TC-104C and TC-102.	For open shelf stand arrangement order TC-104C and TC-103.	For 5-drawer cabinet arrangement order TC-104C and TC-105.	Order TC-104C and two TC-101 for this combination.	Order TC-104C and two TC-102 for this combination.	Order TC-104C and two TC-103 for this combination.
Order TC-104C and two TC-105 for this combination.	Order TC-104C plus TC-101 and TC-102 for this combination.	Order TC-104C plus TC-101 and TC-103 for this combination.	Order TC-104C plus TC-101 and TC-105 for this combination.	Order TC-104C plus TC-102 and TC-103 for this combination.	Order TC-104C plus TC-102 and TC-105 for this combination.	Order TC-104C plus TC-103 and TC-105 for this combination.



METAL TOOL BOXES

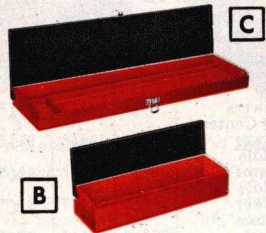
ALL WILLIAMS METAL TOOL BOXES
FEATURE FINEST QUALITY CONSTRUCTION

High grade sheet steel from 22 to 14 gauge is used in proportion to the size and use of the tool box. All are well reinforced and generously spot welded. Hardware is of finest quality. Baked-on enamel for durable finish.

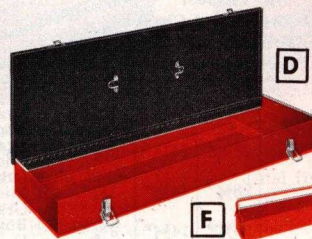
2
ALLOY
SOCKET
SETS
AND
SETS



TB-8T has one full length partition toward front edge of bottom. This space is subdivided to accommodate various sizes and styles of $\frac{1}{2}$ " drive sockets.
TB-9T has two full length partitions in bottom, spaced to accommodate large sockets such as in $\frac{3}{4}$ " drive.



C



D



E

F

G

Measurements in table and set numbers will aid in selecting metal tool boxes when custom-making sets or in finding the right size box for various sized assortments.

All Williams tool boxes are conveniently compartmented so that various types or classes of tools can be divided into handy groups. Each box offers years of trouble-free service.

Key	No.	Width	Depth	Height	Wgt.lbs.	Used for Sets Nos.
A	TB-8	23 $\frac{1}{4}$ "	7 $\frac{1}{2}$ "	9 $\frac{1}{4}$ "	10.5	WSS-7F
A	TB-8T	23 $\frac{1}{4}$ "	7 $\frac{1}{2}$ "	9 $\frac{1}{4}$ "	14.6	WSC-2B, WSC-101B, WSS-7J
A	TB-9T	23 $\frac{1}{4}$ "	7 $\frac{1}{2}$ "	9 $\frac{1}{4}$ "	14.6	WSC-5B, WSC-113A, WSH-3B, WSH-4C
A	TBT-1	22 $\frac{3}{4}$ "	7"	1 $\frac{1}{16}$ "	4.1	Fits TB-8, TB-8T, TB-9T
B	TB-1A	9 $\frac{1}{4}$ "	2 $\frac{1}{4}$ "	1 $\frac{1}{4}$ "	.88	MSM-10, MSM-17, WSM-1B
B	TB-1B	9 $\frac{1}{4}$ "	2 $\frac{1}{4}$ "	1 $\frac{1}{4}$ "	1.1	WSM-3C
B	TB-2A	10"	2 $\frac{1}{16}$ "	1 $\frac{3}{8}$ "	1.3	MSB-13, WSB-1, WSB-16, WSB-17, WSM-2BH
B	TB-3A	9 $\frac{1}{2}$ "	3 $\frac{1}{2}$ "	1 $\frac{1}{4}$ "	1.1	MSM-28, WSM-2B, WSM-5B, WSM-6B, WSM-7C, WSM-9A
B	TB-5	12 $\frac{1}{2}$ "	3 $\frac{3}{4}$ "	2 $\frac{1}{4}$ "	1.9	MSS-14, WSS-1A, WSS-2A, WSS-3A
B	TB-6	12 $\frac{1}{2}$ "	3 $\frac{3}{4}$ "	2 $\frac{1}{4}$ "	2.	MSS-23, WSS-4A
B	TB-13	12 $\frac{1}{2}$ "	5"	1 $\frac{1}{4}$ "	2.1	WSC-112A, WSC-112B
B	TB-14	12 $\frac{3}{4}$ "	4 $\frac{1}{4}$ "	1 $\frac{3}{8}$ "	1.8	WSBP-1

Key	No.	Width	Depth	Height	Wgt.lbs.	Used for Sets Nos.
B	TB-16	8 $\frac{1}{2}$ "	5 $\frac{3}{8}$ "	2 $\frac{1}{2}$ "	1.9	TT-165A
C	TB-4A	19 $\frac{1}{2}$ "	5 $\frac{7}{8}$ "	1 $\frac{3}{8}$ "	3.2	MSB-24, WSB-4, WSB-4A, WSM-8D
C	TB-15	18"	4 $\frac{1}{2}$ "	2"	3.	WSSP-1
D	TB-7	23"	7 $\frac{3}{4}$ "	2 $\frac{1}{4}$ "	6.4	MSB-51, MSS-39, WSB-5E, WSB-6E, WSC-1C, WSS-5B, WSS-5C, WSS-6B, WSS-8A
E	TB-10	20 $\frac{3}{4}$ "	5 $\frac{1}{4}$ "	4 $\frac{1}{4}$ "	8.3	WSH-2B
E	TB-11	29 $\frac{1}{4}$ "	8"	4 $\frac{1}{4}$ "	14.9	WSX-1A
E	TB-12	30 $\frac{1}{4}$ "	11 $\frac{1}{2}$ "	4 $\frac{3}{4}$ "	26.4	WSH-5A, WSX-4A
F	TBT-3	7 $\frac{5}{8}$ "	3 $\frac{1}{4}$ -1 $\frac{1}{8}$ "	3 $\frac{1}{4}$ "	.25	Special Socket Sets
F	TBT-4	7 $\frac{7}{8}$ "	3 $\frac{1}{4}$ -1 $\frac{1}{4}$ "	1 $\frac{1}{2}$ "	.41	Special Socket Sets
F	TBT-5	16 $\frac{7}{8}$ "	1-1 $\frac{1}{16}$ "	1 $\frac{1}{4}$ "	.75	Special Socket Sets
F	TBT-6	12 $\frac{1}{16}$ "	1 $\frac{1}{16}$ -1 $\frac{3}{8}$ "	2 $\frac{1}{2}$ "	.84	Special Socket Sets
G	TBT-2	18 $\frac{1}{2}$ "	7 $\frac{1}{2}$ "	2"	3.	Fits TB-1001, TB-2001, TB-2002, TB-4001

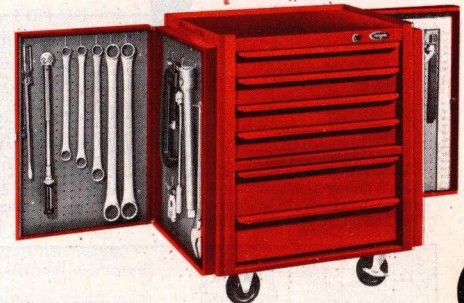
VERTICAL CABINETS FOR WALLS OR ROLLER CABINETS

Add convenient storage for tools longer than drawer width.



When mounted on rollaways or near machinery, these cabinets allow long tools and equipment to be more readily accessible plus secure storage.

Two sizes, 26" or 35" high. These cabinets are designed to mount quickly and easily to walls or sides of any make roller cabinets. Mounting screws and instructions are included. Each cabinet is equipped with a supply of 30 peg-board tool hangers. Cylinder lock and welded full length piano hinge provide excellent security.



No.	Width	Depth	Height	Fits Roller Cabinet Nos.
TCP-100	17"	3 $\frac{3}{4}$ "	26"	TC-101C, TC-102C, TC-103C, TC-105C
TCP-500	17"	3 $\frac{3}{4}$ "	35"	TC-201C, TC-501C, TC-502C

3 TORQUE TOOLS

For technical information about these products

Ask for Technical Bulletin TB-113A on torque limiting wrenches, TB-128 on dial torque wrenches, and TB-129 on torque wrench testers, for valuable technical features and application data on these products.



Avoid first over-tightening a fastener with a conventional wrench before applying torque wrench. Use the torque wrench for final tightening, to assure accurate torquing values.

DIAL TORQUE WRENCHES

FOR U.S. and METRIC APPLICATIONS

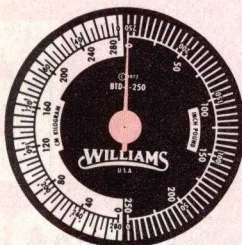
SINGLE POINTER STYLE

FOLLOWER NEEDLE STYLE

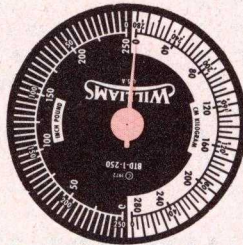


SEE WILLIAMS TECHNICAL BULLETIN TB-128 FOR COMPLETE OPERATIONAL DETAILS.

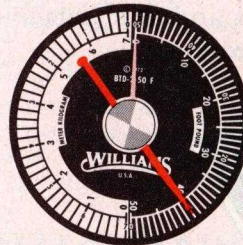
COMBINATION U.S./METRIC DIALS IN SINGLE POINTER and FOLLOWER NEEDLE STYLES



SINGLE POINTER COMBINATION
DIAL SET FOR U.S. READINGS.



SINGLE POINTER COMBINATION
DIAL SET FOR METRIC READINGS.



FOLLOWER NEEDLE COMBINATION
DIAL SET FOR U.S. READINGS.

FOLLOWER NEEDLE STYLE IN FULL DIAL NEWTON METER CALIBRATION IS LISTED IN SECTION 4.

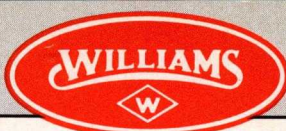
Williams offers a complete line of Dial Torque Wrenches to meet every industrial need. Single Pointer style indicates direct reading of torque value attained. Follower Needle style has additional "memory" needle which remains at the highest torque value attained for positive verification. When reading is no longer needed, the follower needle is reset to zero.

FEDERAL SPEC: GGG-W-00686C, TYPE II, CLASS 1, STYLE A, B AND C

Most styles have unique combination dial faces which permit measurement of torque in either U.S. or Metric values—in either left or right hand direction. Rigidly constructed for long life, they are calibrated to meet the highest standards of industrial accuracy and safety requirements. Calibration certified and traceable to National Bureau of Standards.

FEDERAL SPEC: GGG-W-00686C, TYPE II, CLASS I, STYLE A, B AND C

No.	Drive Size	U.S.		METRIC		Overall Length, Inches		Wgt. Each Lbs.
		Range	Increments	Range	Increments	Wrench Only	With Extension	
SINGLE POINTER STYLE								
BTD-1-250	3/8"	0-250 in lb	5 in lb	0-280 cm kg	5 cm kg	10	.....	1.75
STD-1-250F	1/2"	0-250 ft lb	5 ft lb	0-35 m kg	1 m kg	22-1/2	.....	3.75
FOLLOWER NEEDLE STYLE								
MTD-2-75	1/4"	0-75 in lb	1 in lb	0-90 cm kg	2 cm kg	10	.....	1.75
BTD-2-250	3/8"	0-250 in lb	5 in lb	0-280 cm kg	5 cm kg	10	.....	1.75
BTD-2-50F	3/8"	0-50 ft lb	1 ft lb	0-7 m kg	0.2 m kg	14-7/8	.....	2.0
STD-2-250F	1/2"	0-250 ft lb	5 ft lb	0-35 m kg	1 m kg	22-1/2	.....	3.75
HTD-2-350F	3/4"	0-350 ft lb	10 ft lb	.....	.....	27-3/4	.....	8.0
HTD-2-600F	3/4"	0-600 ft lb	10 ft lb	0-80 m kg	2 m kg	25-1/2	46-1/2	9.5
DIAL GUARD								
HTD-DG	Fits 1/2" and 3/4" Drive Sizes (included with HTD-2-350F only)							.3



DIAL TORQUE WRENCHES

FOR U.S. and METRIC APPLICATIONS

ELECTRIC LIGHT SIGNAL STYLE

3/8"
BTD-3-50F



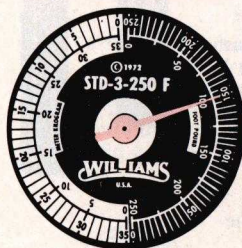
1/2"
STD-3-250F



3/4"
HTD-3-600F

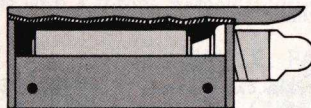


1"
*XTD-3-2000F



ELECTRIC LIGHT SIGNAL DIAL

When desired torque has been reached, electric signal shown below will flash on. Light goes off when pressure is released.



REVERSIBLE RATCHET ADAPTERS

Convert any Torque Wrench to a ratcheting action.



B-55, 3/8" Drive RATCHET ADAPTER
41 Teeth, 2-1/8" long,
1-3/16" outside diam.
Weight, .31 lb.



S-55A, 1/2" Drive RATCHET ADAPTER
41 Teeth, 2-5/8" long,
1-5/8" outside diam.
Weight, .66 lb.



H-55, 3/4" Drive RATCHET ADAPTER
41 Teeth, 3-7/8" long,
2-1/2" outside diam.
Weight, 3.0 lbs.

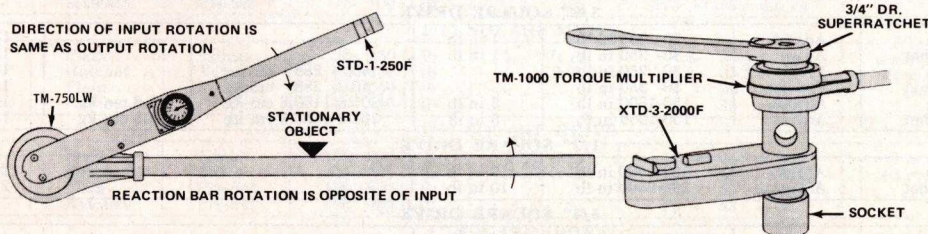
FEDERAL SPEC:

GGG-W-00686C, TYPE II, CLASS 1 AND 2, STYLE A, B AND C

No.	Drive Size	U.S.		METRIC		Overall Length, Inches		Wgt. Each Lbs.
		Range	Increments	Range	Increments	Wrench Only	With Extensions	
ELECTRIC LIGHT SIGNAL STYLE								
BTD-3-50F	3/8	0-50 ft lb	1 ft lb	0-7 m kg	0.2 m kg	14-7/8	.....	2.0
STD-3-250F	1/2	0-250 ft lb	5 ft lb	0-35 m kg	1 m kg	22-1/2	.....	3.75
HTD-3-600F	3/4	0-600 ft lb	10 ft lb	0-80 m kg	2 m kg	25-1/2	46-1/2	9.5
*XTD-3-2000F	1	0-2000 ft lb	50 ft lb	0-280 m kg	5 m kg	13-1/2	*120	21.0

*To be used with Torque Multiplier or with T-Handle assembly only. Use center bar and 2 handles for low torque values, and all 4 handles for torque values over 1000 ft lb.

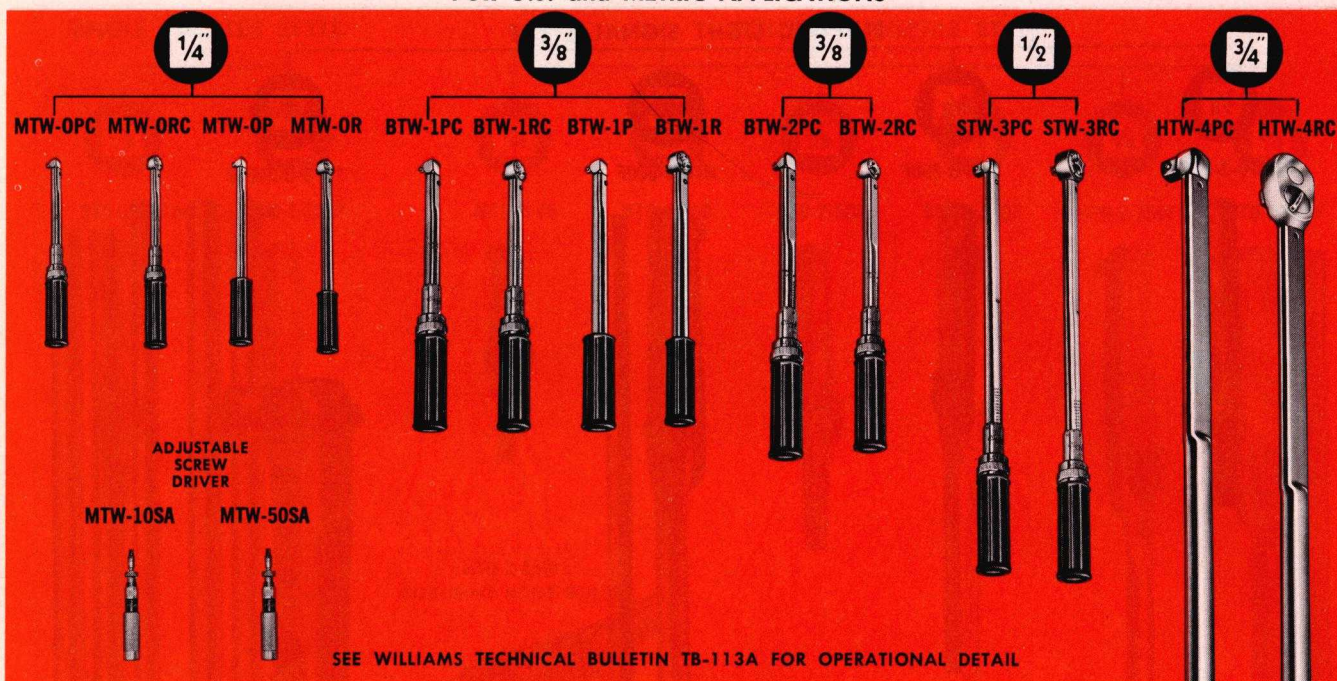
DIAL TORQUE WRENCHES MAY BE USED WITH WILLIAMS TORQUE MULTIPLIERS



SEE PAGE 58 FOR TORQUE MULTIPLIER SPECIFICATIONS

TORQUE LIMITING WRENCHES

FOR U.S. and METRIC APPLICATIONS



SEE WILLIAMS TECHNICAL BULLETIN TB-113A FOR OPERATIONAL DETAIL

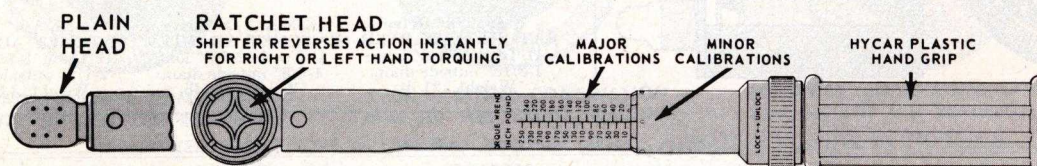
DESIGN FEATURES

VERSATILE DESIGN Slim tapered head for easy reach. Small and light for use in confined spaces. Wide right or left hand torque measuring capability in every tool (note the broad range for each model) often means that one torque wrench can now do a multitude of jobs. Many models have dual U.S./METRIC marking scales.

CALIBRATED TYPES Easy to operate. Merely turn the micrometer style handle to the desired setting and lock in place. The torque limiting device will momentarily release when the predetermined torque has been reached by feel impulse and with audible signal. By relaxing pull on handle, the torque wrench is then ready for another fastener.

NON-CALIBRATED (preset) TYPES These are the same as the micrometer type except that torque is set by means of an adjusting screw located in the handle cavity. The cavity is then sealed with a special aluminum plug which precludes adjustment of the torque setting without damaging the plug. Ideal for production line and quality control requirements.

RATCHETING and PLAIN TYPES Williams Superratchet mechanisms are made available in the 1/4, 3/8, 1/2 and 3/4 inch drive sizes. Handy when fasteners must be "run down" before final torquing. Plain styles are very useful for applying specified torque to an already seated fastener.



FEDERAL SPEC: GGG-W-00686C-1, TYPE III, CLASS 1, 2, 3 AND 4

No.	Type Head	Setting	U.S. STANDARD		METRIC		Length Inches	Wgt. Lbs.
			Range	Increments	Range	Increments		
1/4" SQUARE DRIVE								
MTW-10SA	Serdriver	Adjust.	4- 100 in oz	2 in oz	.....	.....	6-1/2	0.4
MTW-50SA	Serdriver	Adjust.	2- 30 in lb	1 in lb	.....	.....	6-1/2	0.4
MTW-OPC	Plain	Adjust.	30- 200 in lb	1 in lb	40.3- 236.2 cm kg	1.2 cm kg	9	0.6
MTW-ORC	Ratchet	Adjust.	30- 200 in lb	1 in lb	40.3- 236.2 cm kg	1.2 cm kg	9-1/2	0.7
MTW-OP	Plain	Pre-Set	30- 200 in lb	.....	40 - 236 cm kg	.....	7-1/2	0.6
MTW-OR	Ratchet	Pre-Set	30- 200 in lb	.....	40 - 236 cm kg	.....	9-1/2	0.7
3/8" SQUARE DRIVE								
BTW-1PC	Plain	Adjust.	30- 250 in lb	1 in lb	.....	.....	13	1.6
BTW-1RC	Ratchet	Adjust.	30- 250 in lb	1 in lb	.....	.....	13	1.6
BTW-1P	Plain	Pre-Set	30- 250 in lb	.....	40 - 288 cm kg	.....	13	1.4
BTW-1R	Ratchet	Pre-Set	30- 250 in lb	.....	40 - 288 cm kg	.....	13	1.4
BTW-2PC	Plain	Adjust.	150-1000 in lb	5 in lb	201.6-1180.8 cm kg	5.8 cm kg	14	2.1
BTW-2RC	Ratchet	Adjust.	150-1000 in lb	5 in lb	201.6-1180.8 cm kg	5.8 cm kg	15	2.3
1/2" SQUARE DRIVE								
STW-3PC	Plain	Adjust.	300-2500 in lb	10 in lb	.....	.....	20	2.3
STW-3RC	Ratchet	Adjust.	300-2500 in lb	10 in lb	.....	.....	21	2.8
3/4" SQUARE DRIVE								
HTW-4PC	Plain	Adjust.	1000-6000 in lb	25 in lb	.....	.....	40	9.5
HTW-4RC	Ratchet	Adjust.	1000-6000 in lb	25 in lb	.....	.....	40	10.0

TORQUE LIMITING WRENCHES

FOR U.S. and METRIC APPLICATIONS



3

TORQUE
TOOLS

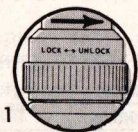
For overall description of torque wrenches illustrated above see information on opposite page.

The rugged XTW-5PCFA, 1" drive model is designed for utmost convenience in limiting torque in various ranges. Use the torque head-handle unit only, for values to 500 foot pounds. Use torque head with one handle extension, for values to 1000 foot pounds. Use both handle extensions together, for values to 2000 foot pounds.

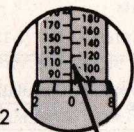
HELPFUL TORQUE HINTS

Always work with clean threads that are free of corrosion. For accurate work consult product manufacturer's recommendations for specific torque loading. Note particularly whether recommendations are for dry, oiled or plated threads. Avoid first over-tightening a nut or bolt with a conventional wrench before applying torque wrench. Final tightening should always be done with a torque wrench to arrive at accurate readings.

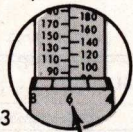
SIMPLE, FAST OPERATING PROCEDURE



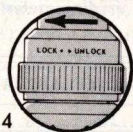
1
UNLOCK by turning lock ring to the right.



2
ROTATE grip until MAJOR TORQUE VALUE shows here.



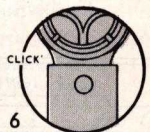
3
THEN ROTATE grip so MINOR TORQUE VALUE reading lines up with "zero" line.



4
LOCK torque setting by turning lock ring to the left.



5
SET ratchet shifter for desired direction.



6
An AUDIBLE snap-type signal indicates that selected torque has been reached.

No.	Type Head	Setting	U.S. STANDARD		METRIC			Length Inches	Wgt. Lbs.
			Range	Increments	Range	Increments			
3/8" SQUARE DRIVE									
BTW-2PCF	Plain	Adjust.	15- 100 ft lb	1/2 ft lb	2.4- 14.2 m kg	.07 m kg		14	2.1
BTW-2RCF	Ratchet	Adjust.	15- 100 ft lb	1/2 ft lb	2.4- 14.2 m kg	.07 m kg		15	2.3
BTW-2PF	Plain	Pre-Set	15- 100 ft lb	.....	173 -1152 cm kg	.....		14	1.6
BTW-2RF	Ratchet	Pre-Set	15- 100 ft lb	.....	173 -1152 cm kg	.....		15	1.8
1/2" SQUARE DRIVE									
STW-3PCF	Plain	Adjust.	30- 250 ft lb	1 ft lb	4.8- 35.3 m kg	.14 m kg		20	2.3
STW-3RCF	Ratchet	Adjust.	30- 250 ft lb	1 ft lb	4.8- 35.3 m kg	.14 m kg		21	2.8
STW-3PF	Plain	Pre-Set	30- 250 ft lb	.....	4 - 35 m kg	.....		19-1/2	1.8
STW-3RF	Ratchet	Pre-Set	30- 250 ft lb	.....	4 - 35 m kg	.....		20	2.3
3/4" SQUARE DRIVE									
HTW-4PCF	Plain	Adjust.	100- 600 ft lb	2-1/2 ft lb	15.6- 84.7 m kg	.40 m kg		40	9.5
HTW-4RCF	Ratchet	Adjust.	100- 600 ft lb	2-1/2 ft lb	15.6- 84.7 m kg	.40 m kg		40	10.0
HTW-4PF	Plain	Pre-Set	100- 600 ft lb	.....	14 - 83 m kg	.....		38	7.9
HTW-4RF	Ratchet	Pre-Set	100- 600 ft lb	.....	14 - 83 m'kg	.....		38	8.4
1" SQUARE DRIVE									
XTW-5PCFA	Plain	Adjust.	300-2000 ft lb	10 ft lb	48 - 270 m kg	1.4 m kg		*105	57.5

*Overall length fully assembled with both handles. Entire set comes complete in wooden box.

TORQUE WRENCH TESTERS

TORSION BAR STYLE

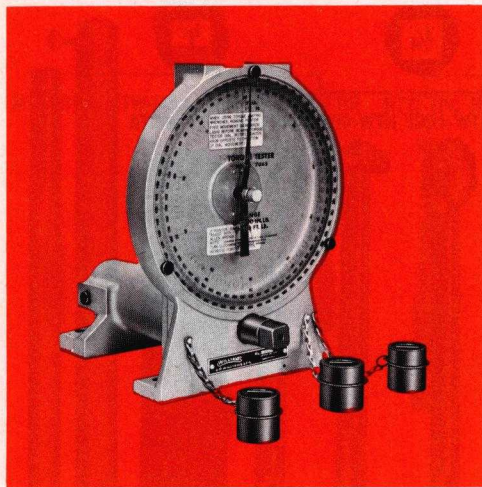


Figure No. 1

TORQUE TESTER—Checking Accuracy of Wrench

Attach torque wrench to tester input, using appropriate adapter. Apply a clockwise torque to the torque wrench, slowly increasing the torque until the desired value is reached. Compare the readings of the torque tool and the tester. Return pointer to zero, and repeat test. Compare, and make any necessary adjustments to the torque tool. See Tech Bulletin TB-129.

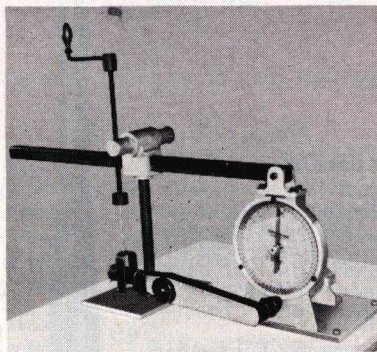


Figure No. 2

TORQUE TESTER with MECHANICAL LOADER

Mechanical Loader may be used on higher range torque testers to apply the pulling load on a torque wrench easily and evenly. It also facilitates viewing readings on torque tester while applying proper amount of torque. Turn crank counterclockwise to lift torque wrench until desired torque value is reached. Compare readings, retest.

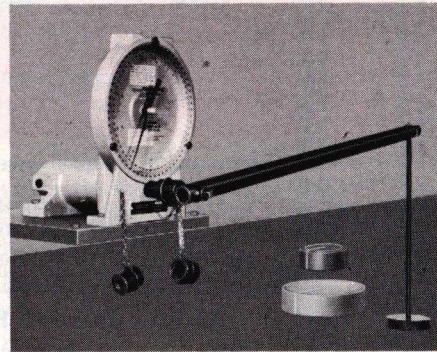


Figure No. 3

TORQUE TESTER with CALIBRATOR ASSEMBLY

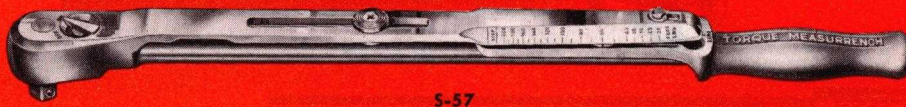
Testers can be checked for continued accuracy by use of dead weight calibrators and weights noted in Test Reading Chart and steps describing procedure for checking tester calibration contained in Tech Bulletin TB-129. Weights are of commercial quality, cast iron held to a tolerance of plus or minus 15 grains on 20-pound weights, 13 grains on 5-pound weights.

MILITARY DESCRIPTION: MIL-T-26639C

U.S. ONLY			COMBINATION U.S./METRIC			Drive Size	Adapters Included		Wgt. Lbs.
No.	Range	Increments	No.	Range	Increments		Female	Male	
TORQUE WRENCH TESTERS-Figure No. 1									
TT-7085	0- 250 in lb 0-4000 in oz	1 in lb 5 in oz	TT-F7085	0- 290 cm kg 0- 250 in lb	1 cm kg 1 in lb	3/8 F.	1/4	3/8	10.5
TT-7075	0- 150 ft lb 0-1800 in lb	1 ft lb 2 in lb	TT-F7075	0-2000 cm kg 0-1800 in lb	5 cm kg 2 in lb	3/8 F.	1/4 1/2	3/8 3/8	10.5
TT-7065	0- 500 ft lb 0-6000 in lb	5 ft lb 10 in lb	TT-F7065	0- 70 m kg 0- 500 ft lb	1 m kg 5 ft lb	3/4 M.	3/4 x 3/4 3/4 x 1/2 3/4 x 3/8	...	12.0
TT-7045	0-1000 ft lb	10 ft lb	TT-F7045	0- 140 m kg 0-1000 ft lb	1 m kg 5 ft lb	1 M.	1 x 1 1 x 3/4	...	15.0
No. Description									Wgt. Lbs.
MECHANICAL LOADER-Figure No. 2									
TT-7047	Use with any torque wrench. Overall Length, 48"								10.0
CALIBRATOR ASSEMBLIES-Figure No. 3									
TT-7085631	Use with TT-7085 Torque Tester. Requires three 5 pound weights (not included).								8.0
TT-7075631	Use with TT-7075 Torque Tester. Requires three 5 pound and two 20 pound weights (not included).								11.0
TT-7065631	Use with TT-7065 Torque Tester. Requires three 5 pound and four 20 pound weights (not included).								19.0
	Use with TT-7045 Torque Tester. Requires two 5 pound and nine 20 pound weights (not included).								.....
WEIGHTS-Figure No. 3									
TT-73630-5	5 pound weight for use with Calibrator Assemblies listed in above table.								5.0
TT-73630-20	20 pound weight for use with Calibrator Assemblies listed in above table.								20.0

MEASURRENCH® TORQUE WRENCH

DEFLECTING BEAM—CONVERGING SCALE TYPE



S-57

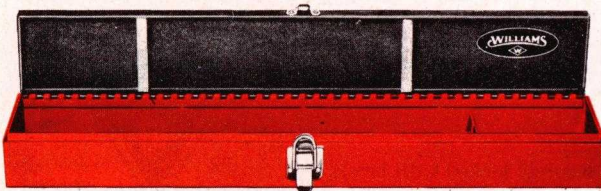


B-58

RATCHETING STYLE



S-57



Complete in Metal Case, 20 x 3 x 2-1/8

No. S-57 1/2" SQUARE DRIVE REVERSIBLE RATCHET WITH RIGHT HAND TORQUE INDICATING SOUND SIGNAL

Total Weight, 5.9 lbs.

Williams Ratchet Measurrench® Torque Wrench may be used in two ways, as follows:—

By Sight Reading—An easily read scale on the handle indicates applied tightening pressures from 20 to 200 foot-pounds.

By Sound Reading—A sharp sound signal is given for any desired torque from 35 to 200 foot pounds, by setting the simple sound device.

Simple in design and sturdy in construction, the reversible ratchet mechanism is a highly desirable feature. The 36-tooth ratchet wheel, with double-tooth, oscillating pawl provides constant engagement with TWO teeth of ratchet-gear in both ON and OFF rotation of nuts.

It makes possible the unusually short operating swing of only 1/30 of a full turn; obstruction hazards are reduced to the minimum. The wrench action is instantly reversed by a mere flip of the shifter, which is flush with the head.

The well balanced drop-forged handle, with specially designed grip, is 19-1/2" long for ample leverage; the head is exceptionally compact and free from protrusions, for easy use in close places.

Every part is made of selected alloy and high tensile steel, accurately machined and heat-treated. Chrome-plated, with entire top and sides of head and calibrated bar buffed; handle, "satin" chrome. Packed in individual metal case. Operating instructions are supplied with each wrench. Accuracy $\pm 5\%$.

No.	Range	Increments	Length	Wgt., Each
S-57	20-200 ft lb	5 ft lb	19-1/2	3.7

NON-RATCHETING STYLE



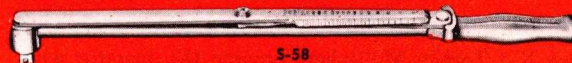
B-58A



B-58



S-58A



S-58

NON-RATCHETING FOR MEASURING RIGHT AND LEFT HAND TORQUE BY SIGHT READING

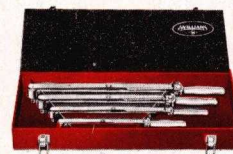
This series of torque wrenches employs the time-proven converging scale method of torque reading developed and patented by Williams.

Calibrations are machine cut to insure long life, accuracy and easy reading of the indicated torque.

Their streamlined appearance is indicative of the light weight and proportional balance used in the design of these wrenches.

Selected alloy steel is accurately machined and heat-treated. Chrome-plated finish with calibrated areas buffed. Operating instructions are supplied with each individually boxed wrench. Accuracy $\pm 10\%$.

No.	Range	Increments	Length	Wgt., Each
3/8" SQUARE DRIVE				
B-58A	0-150 in lb	5 in lb	12-1/4	.94
B-58	0-600 in lb	25 in lb	15-1/2	1.2
1/2" SQUARE DRIVE				
S-58A	0-100 ft lb	5 ft lb	18	2.6
S-58	0-200 ft lb	5 ft lb	19-7/8	3.2



SET No. T4-58

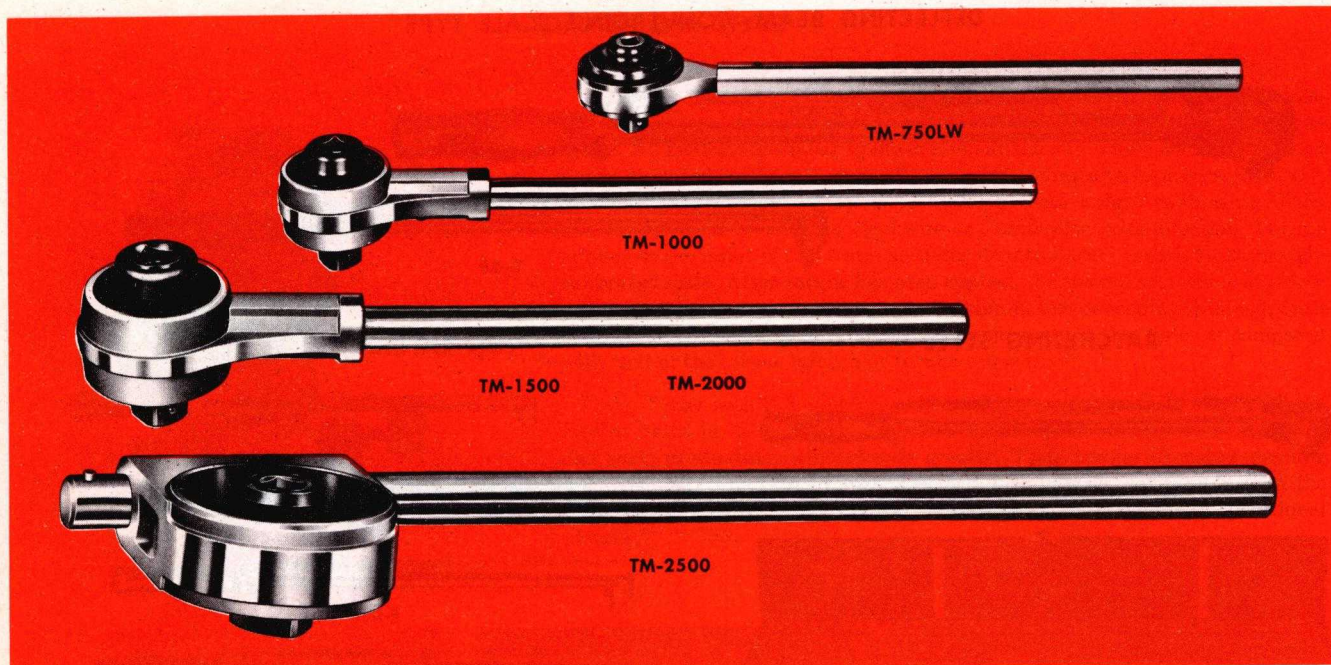
One each Torque Wrenches
As Listed Below

Complete in Metal Box
20-7/8" x 8-1/2" x 2-1/2"
Total Weight, 15 lbs.

No.	Range	Increments	Length	Wgt., Each
3/8" SQUARE DRIVE				
B-58A	0-150 in lb	5 in lb	12-1/4	.94
B-58	0-600 in lb	25 in lb	15-1/2	1.2
1/2" SQUARE DRIVE				
S-58A	0-100 ft lb	5 ft lb	18	2.6
S-58	0-200 ft lb	5 ft lb	19-7/8	3.2

X-4 TORQUE MULTIPLIERS

3

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Williams X-4 Torque Multipliers provide the operator with nut-turning power that requires only a fraction of the force required when using conventional tools. Williams X-4's multiply the force applied by the operator up to nearly five times depending on the characteristics of the model in use.

Input and output rotation is in the same direction. Rotation of the reaction bar is in the opposite direction. Reaction bar, therefore, must rest securely against an object sturdy enough to withstand the force that will be generated. All reaction bars

are securely locked with heads.

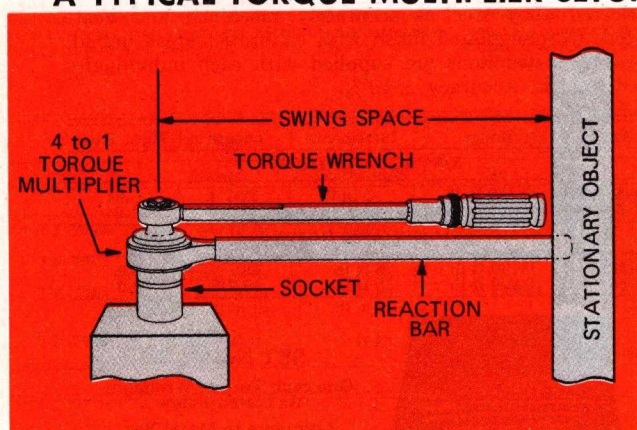
By removing four screws, heads may be disassembled for inspection, cleaning and lubrication.

X-4's can be driven with ratchets or torque wrenches may be used with sufficient accuracy for most applications.

Two Williams X-4 Torque Multipliers may be used in combination to provide multiple ratios where extreme turning power is required. Contact Williams Engineering Department for specific solutions to your Torque multiplier needs.

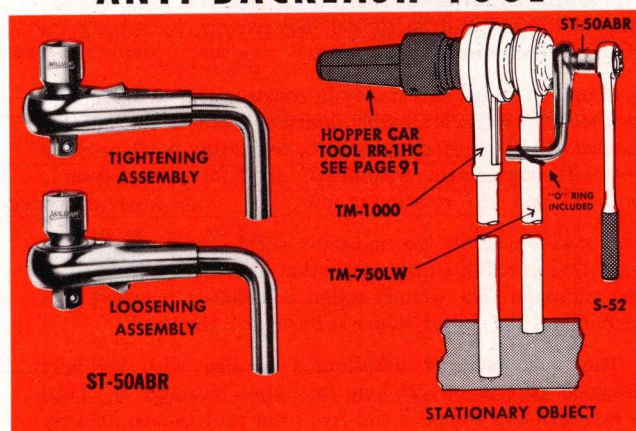
No.	Max. Output Foot Pounds	Output Ratio	Max. Input Foot Pounds	Input Female Sq.	Output Male Sq.	Head Thickness Including Tang	Head Diam.	Overall Length Incl. Reaction Bar	Weight Lbs.
TM-750LW	1,000	4 to 1	285	1/2	3/4	3-3/8	3-1/2	22-1/2	5.5
TM-1000	2,000	4 to 1	570	3/4	1	4-3/8	3-3/4	25-1/2	14.
TM-1500	4,000	4.33 to 1	1,080	1	1-1/2	6-3/16	5-1/4	29-3/4	35.
TM-2000	8,000	4.33 to 1	2,160	1	1-1/2	6-3/8	6-1/2	31	47.
TM-2500	12,000	6 to 1	2,450	1	2-1/2	7	8	30	78.

A TYPICAL TORQUE MULTIPLIER SETUP



In use, a standard socket of appropriate size is placed on the male square drive tang. A suitable ratchet or ratcheting torque wrench is inserted in the female square drive input of the torque multiplier. With this assembly placed on the fastener to be turned, it must be remembered that the input and output rotation will be in the same direction. Rotation of the reaction bar will be in the opposite direction. The reaction bar, therefore, must rest securely against an object sturdy enough to withstand the force that will be generated.

ANTI-BACKLASH TOOL



Revolutionary new tool solves the "wind-up" problem usually experienced when using Torque multipliers in tandem. As torque builds up, an ever increasing swing arc becomes necessary to continue the turning process. The ST-50ABR acts as a storage dog to absorb this effect and allow instant turning, without unwinding the set up each time. Since constant pressure is being held, the set up maintains rigidity so that only a short swing arc is required to complete the turning process swiftly and securely.

No.	Description	Wgt.-Lbs.
ST-50ABR	Anti-Backlash Tool, 1/2 Drive M. & F.	1.4

4 M E T R I C T O O L S

4

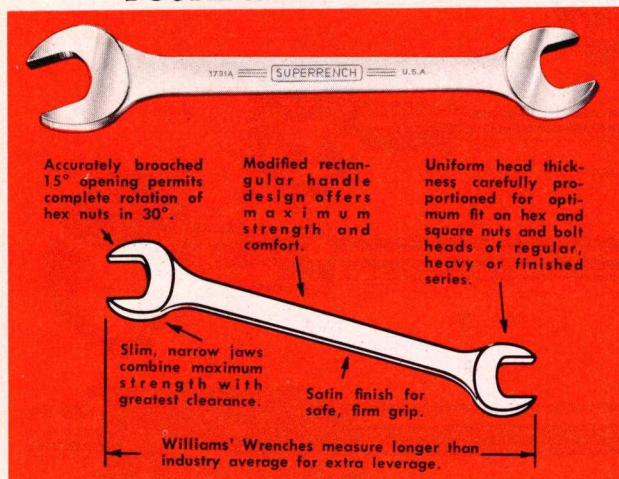
M E T R I C
T O O L S



Don't attempt to turn metric fasteners with nearly equivalent U.S. standard wrenches. Damage to the fastener could result, and cause dangerous slippage in subsequent use. Make sure you have the proper metric size.

METRIC OPEN END WRENCHES

SELECTED ALLOY STEEL
DOUBLE HEAD—15° ANGLE



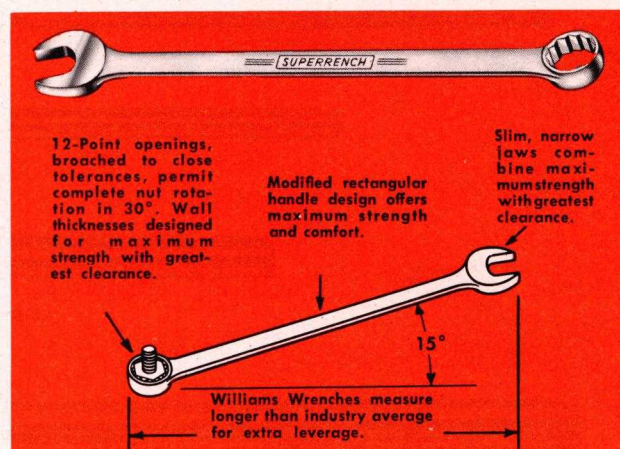
Jaws are long, thin and pointed. Drop-forged from Selected Alloy Steel, heat-treated, chrome-plated over nickel, faces polished. Highly efficient where clearance is limited.

Example of Order Nomenclature: "EWM-1011 WRENCH"

No.	Nominal Openings mm	Small Head		Large Head		Overall Length	Wgt. Ea., Lbs.
		Width	Thick.	Width	Thick.		
EWM-0607	6 & 7	1/2	5/32	39/64	5/32	3-13/16	.03
EWM-0809	8 & 9	39/64	3/16	23/32	3/16	4- 1/4	.05
EWM-0810	8 & 10	39/64	3/16	25/32	3/16	4- 1/4	.05
EWM-0911	9 & 11	47/64	13/64	53/64	13/64	4-11/16	.07
EWM-1011	10 & 11	47/64	13/64	53/64	13/64	4-11/16	.07
EWM-1012	10 & 12	53/64	7/32	15/16	7/32	5- 1/8	.10
EWM-1214	12 & 14	15/16	1/4	1- 1/8	1/4	6- 1/4	.15
EWM-1315	13 & 15	1- 1/16	17/64	1-11/64	17/64	6- 7/8	.20
EWM-1618	16 & 18	1-11/64	19/64	1-15/32	19/64	8- 1/4	.32
EWM-1719	17 & 19	1-19/64	5/16	1-17/32	5/16	9	.38
EWM-2123	21 & 23	1-41/64	3/8	1- 3/4	3/8	10- 1/2	.71
EWM-2124	21 & 24	1-41/64	3/8	1- 3/4	3/8	10- 1/2	.71
EWM-2227	22 & 27	1- 3/4	13/32	2	13/32	11- 3/8	.90
EWM-2730	27 & 30	2- 7/64	15/32	2-29/64	15/32	13- 1/4	1.5

METRIC BOX/OPEN END WRENCHES

SELECTED ALLOY STEEL
LONG SERIES—15° ANGLE—12-PT. BOX



Drop-forged from tough Selected Alloy Steel, heat-treated and chrome-plated over nickel with faces of open ends and box ends polished. Box end, with 12-point opening, is offset from plane of handle, same size opening in both heads.

Example of Order Nomenclature: "XOEM-10 WRENCH"

No.	Nominal Openings mm	Open End		Box End		Overall Length	Wgt. Ea., Lbs.
		Width	Thick.	Diam.	Thick.		
XOEM-7	7 & 7	35/64	5/32	13/32	3/16	5	.05
XOEM-8	8 & 8	11/16	3/16	17/32	7/32	5- 1/2	.06
XOEM-9	9 & 9	11/16	3/16	17/32	7/32	5- 1/2	.06
XOEM-10	10 & 10	51/64	13/64	37/64	1/4	6	.08
XOEM-11	11 & 11	29/32	7/32	21/32	5/16	6- 5/8	.13
XOEM-12	12 & 12	1- 1/32	1/4	47/64	21/64	7- 3/16	.16
XOEM-13	13 & 13	1- 1/32	1/4	47/64	21/64	7- 3/16	.16
XOEM-14	14 & 14	1- 5/32	9/32	53/64	11/32	7-15/16	.21
XOEM-15	15 & 15	1- 9/32	19/64	59/64	3/8	8- 3/4	.29
XOEM-16	16 & 16	1- 9/32	19/64	59/64	3/8	8- 3/4	.29
XOEM-17	17 & 17	1-13/32	5/16	1- 1/64	13/32	9- 5/8	.35
XOEM-18	18 & 18	1-13/32	5/16	1- 1/64	13/32	9- 5/8	.35
XOEM-19	19 & 19	1-17/32	11/32	1- 3/32	7/16	10- 5/8	.46
XOEM-20	20 & 20	1- 5/8	23/64	1-11/64	15/32	11- 9/16	.58
XOEM-21	21 & 21	1- 5/8	23/64	1-11/64	15/32	11- 9/16	.58
XOEM-22	22 & 22	1- 3/4	3/8	1- 1/4	1/2	12-11/16	.69
XOEM-23	23 & 23	1-55/64	25/64	1-21/64	9/16	13- 7/8	.85
XOEM-24	24 & 24	1-55/64	25/64	1-21/64	9/16	13- 7/8	.85
XOEM-25	25 & 25	1-31/32	13/32	1-27/64	5/8	15- 1/8	1.
XOEM-27	27 & 27	2- 3/32	27/64	1- 1/2	43/64	16- 1/4	1.3
XOEM-30	30 & 30	2-15/32	15/32	1-25/32	3/4	18-11/16	1.8
XOEM-32	32 & 32	2-15/32	15/32	1-25/32	3/4	18-11/16	1.9
XOEM-34	34 & 34	2-19/32	1/2	1-27/32	25/32	20	2.2
XOEM-36	36 & 36	2-61/64	9/16	2- 3/32	27/32	21- 5/16	3.1

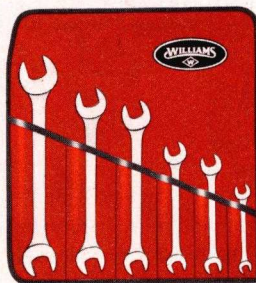
METRIC OPEN END WRENCH SETS

SET No. MSEW-6R

6 Wrenches
in K-10 Roll Kit

SET No. MSEW-6T

6 Wrenches Only
Weight, 3.2 lbs.



Example of Order Nomenclature: "MSEW-6R SET IN ROLL"

No.	Nominal Openings	No.	Nominal Openings
EWM-0810	8 & 10 mm	EWM-1719	17 & 19 mm
EWM-1315	13 & 15 mm	EWM-2124	21 & 24 mm
EWM-1618	16 & 18 mm	EWM-2730	27 & 30 mm

SET No. MSEW-8R

8 Wrenches
in K-15 Roll Kit

SET No. MSEW-8T

8 Wrenches Only
Weight, 3.4 lbs.



No.	Nominal Openings	No.	Nominal Openings
EWM-0810	8 & 10 mm	EWM-1618	16 & 18 mm
EWM-0911	9 & 11 mm	EWM-1719	17 & 19 mm
EWM-1214	12 & 14 mm	EWM-2124	21 & 24 mm
EWM-1315	13 & 15 mm	EWM-2730	27 & 30 mm

METRIC BOX/OPEN WRENCH SETS

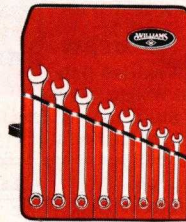
SELECTED ALLOY STEEL

LONG SERIES—15° ANGLE—12-PT. BOX

SET No. MSCW-8R

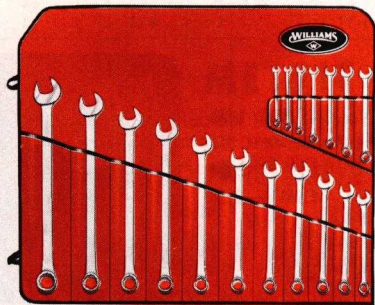
8 Wrenches
in K-15 Roll Kit

SET No. MSCW-8T

8 Wrenches Only
Weight, 2.7 lbs.

Example of Order Nomenclature: "MSCW-8R SET IN ROLL"

No.	Nominal Openings	No.	Nominal Openings
XOEM-8	8 & 8 mm	XOEM-16	16 & 16 mm
XOEM-10	10 & 10 mm	XOEM-18	18 & 18 mm
XOEM-13	13 & 13 mm	XOEM-21	21 & 21 mm
XOEM-15	15 & 15 mm	XOEM-24	24 & 24 mm



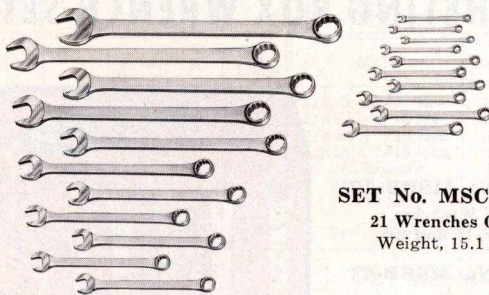
SET No. MSCW-18R

18 Wrenches
in K-20 Roll Kit

SET No. MSCW-18T

18 Wrenches Only
Weight, 7.9 lbs.

No.	Nominal Openings	No.	Nominal Openings
XOEM-7	7 & 7 mm	XOEM-16	16 & 16 mm
XOEM-8	8 & 8 mm	XOEM-17	17 & 17 mm
XOEM-9	9 & 9 mm	XOEM-18	18 & 18 mm
XOEM-10	10 & 10 mm	XOEM-19	19 & 19 mm
XOEM-11	11 & 11 mm	XOEM-21	21 & 21 mm
XOEM-12	12 & 12 mm	XOEM-22	22 & 22 mm
XOEM-13	13 & 13 mm	XOEM-24	24 & 24 mm
XOEM-14	14 & 14 mm	XOEM-27	27 & 27 mm
XOEM-15	15 & 15 mm	XOEM-30	30 & 30 mm



SET No. MSCW-21T

21 Wrenches Only
Weight, 15.1 lbs.

No.	Nominal Openings	No.	Nominal Openings
XOEM-7	7 & 7 mm	XOEM-18	18 & 18 mm
XOEM-8	8 & 8 mm	XOEM-19	19 & 19 mm
XOEM-9	9 & 9 mm	XOEM-21	21 & 21 mm
XOEM-10	10 & 10 mm	XOEM-22	22 & 22 mm
XOEM-11	11 & 11 mm	XOEM-24	24 & 24 mm
XOEM-12	12 & 12 mm	XOEM-27	27 & 27 mm
XOEM-13	13 & 13 mm	XOEM-30	30 & 30 mm
XOEM-14	14 & 14 mm	XOEM-32	32 & 32 mm
XOEM-15	15 & 15 mm	XOEM-34	34 & 34 mm
XOEM-16	16 & 16 mm	XOEM-36	36 & 36 mm
XOEM-17	17 & 17 mm		

METRIC BOX/OPEN END WRENCH

SELECTED ALLOY STEEL

SHORT SERIES—15° ANGLE—12-PT. BOX



Jaws are long, thin and pointed. Drop-forged from Selected Alloy Steel, heat-treated, chrome-plated over nickel, faces polished. Highly efficient where clearance is limited.

No.	Nominal Openings mm	Open End		Box End		Overall Length	Wgt. Each, Lbs.
		Width	Thick.	Diam.	Thick.		
†XOEMS-6	6 & 6	1/2	1/8	25/64	9/64	3- 1/8	.01
†XOEMS-7	7 & 7	35/64	1/8	7/16	9/64	3- 3/8	.02
†XOEMS-8	8 & 8	5/8	9/64	15/32	5/32	3-11/16	.02
XOEMS-9	9 & 9	43/64	9/64	17/32	5/32	4	.03
XOEMS-10	10 & 10	47/64	3/16	35/64	15/64	4- 3/8	.08
XOEMS-11	11 & 11	13/16	13/64	5/8	1/4	4-11/16	.11
XOEMS-12	12 & 12	15/16	7/32	45/64	5/16	5- 1/16	.16
XOEMS-13	13 & 13	15/16	7/32	45/64	5/16	5- 1/16	.16
XOEMS-14	14 & 14	1- 3/64	15/64	13/16	21/64	5- 1/2	.22
XOEMS-15	15 & 15	1- 5/32	17/64	57/64	11/32	5-15/16	.28
XOEMS-16	16 & 16	1- 5/32	17/64	57/64	11/32	5-15/16	.32
XOEMS-17	17 & 17	1- 9/32	9/32	31/32	3/8	6- 7/16	.38
XOEMS-18	18 & 18	1- 9/32	9/32	31/32	3/8	6- 7/16	.38
XOEMS-19	19 & 19	1-25/64	19/64	1- 1/16	13/32	6- 7/8	.51

†Hex box opening.

SET No. MSCWS-8R

8 Wrenches
in K-12 Roll Kit

SET No. MSCWS-8T

8 Wrenches Only
Weight, 1.3 lbs.

Example of Order Nomenclature: "MSCWS-8R SET IN ROLL"

No.	Nominal Openings	No.	Nominal Openings
XOEMS-6	6 & 6 mm	XOEMS-13	13 & 13 mm
XOEMS-7	7 & 7 mm	XOEMS-15	15 & 15 mm
XOEMS-8	8 & 8 mm	XOEMS-16	16 & 16 mm
XOEMS-10	10 & 10 mm	XOEMS-18	18 & 18 mm

METRIC FLARE NUT WRENCHES

SELECTED ALLOY STEEL

DOUBLE HEAD SPLIT BOX



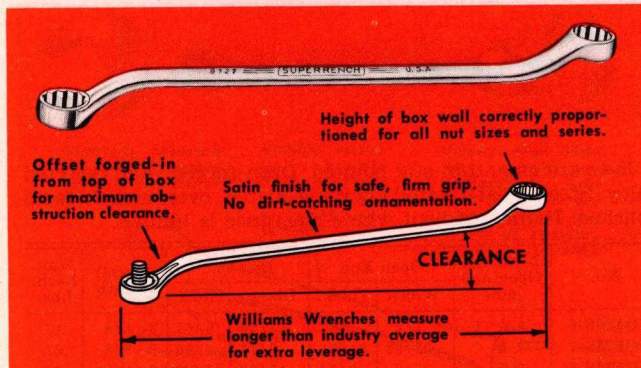
Each box end has a 6-point opening offset 15° from plane of handle with a tube opening slot at 22½° to the axis of the handle.

Example of Order Nomenclature: "MFN-1517 WRENCH"

No.	Nom. Op. mm	Small End			Large End			Lgt.	Wgt. Each, Lbs.
		Head Diam.	Head Thick.	Tube Clear	Head Diam.	Head Thick.	Tube Clear		
MFN-911	9 & 11	51/64	11/32	1/4	7/8	3/8	9/32	6-1/4	.12
MFN-1012	10 & 12	51/64	11/32	1/4	7/8	3/8	9/32	6-1/4	.12
MFN-1314	13 & 14	31/32	3/8	3/8	1-1/16	7/16	7/16	7-1/2	.25
MFN-1517	15 & 17	1-7/64	7/16	15/32	1-15/64	1/2	9/16	8-1/2	.40

METRIC 12-POINT BOX WRENCHES

SELECTED ALLOY STEEL
LONG DOUBLE OFFSET PATTERN



Drop-forged from Selected Alloy Steel, heat-treated, chrome-plated over nickel, heads polished.

†Hex Opening

Example of Order Nomenclature: "BWM-1719 WRENCH"

No.	Nominal Openings mm	Small Head		Large Head		Overall Length	Wgt. Ea., Lbs.
		Diam.	Thick.	Diam.	Thick.		
†BWM-0607H	6 & 7	3/8	11/64	13/32	3/16	3- 3/8	.04
BWM-0810	8 & 10	33/64	15/64	5/8	17/64	7- 1/2	.13
BWM-0911	9 & 11	37/64	1/4	21/32	9/32	7- 3/4	.13
BWM-1012	10 & 12	21/32	19/64	47/64	21/64	8- 1/16	.20
BWM-1213	12 & 13	47/64	21/64	53/64	11/32	8-11/16	.25
BWM-1214	12 & 14	47/64	21/64	53/64	11/32	8-11/16	.25
BWM-1314	13 & 14	47/64	21/64	53/64	11/32	8-11/16	.25
BWM-1315	13 & 15	53/64	11/32	29/32	3/8	9- 3/8	.30
BWM-1517	15 & 17	29/32	3/8	1	13/32	9- 3/4	.35
BWM-1618	16 & 18	29/32	13/32	1- 5/64	7/16	10- 1/8	.42
BWM-1719	17 & 19	1	13/32	1- 5/64	7/16	10- 1/2	.44
BWM-2122	21 & 22	1- 1/4	17/32	1-21/64	9/16	13- 3/8	1.
BWM-2124	21 & 24	1- 1/4	17/32	1-21/64	9/16	13- 3/8	1.
BWM-2324	23 & 24	1- 1/4	9/16	1-13/32	19/32	13- 7/8	1.
BWM-2629	26 & 29	1- 1/2	43/64	1- 9/16	23/32	16- 5/8	1.4
BWM-2730	27 & 30	1- 1/2	11/16	1-25/32	3/4	17- 1/4	1.6
BWM-3032	30 & 32	1- 9/16	23/32	1-27/32	25/32	18- 3/4	2.8

METRIC RATCHETING BOX WRENCHES

DOUBLE HEAD PATTERN



Made from selected steel. All critical parts are heat-treated for lasting service and safety. Chrome-plated over nickel.

†Hex Openings

No.	Nominal Openings mm	Small Head		Large Head		Overall Length	Wgt. Each, Lbs.
		Diam.	Thick.	Diam.	Thick.		
†RBM-0708	7 & 8	19/32	3/8	5/8	3/8	4-1/4	.13
†RBM-0910	9 & 10	23/32	3/8	7/8	3/8	5-1/2	.19
†RBM-1112	11 & 12	1	1/2	1-1/8	1/2	6-3/4	.42
†RBM-1314	13 & 14	1	1/2	1-1/8	1/2	6-3/4	.42
RBM-1517	15 & 17	1- 9/32	1/2	1-7/16	1/2	8	.67
RBM-1618	16 & 18	1- 9/32	1/2	1-7/16	1/2	8	.67
RBM-1921	19 & 21	1-13/32	1/2	1-9/16	1/2	9-1/4	.75

METRIC BOX WRENCH SETS

SET No. MSBW-6R
6 Wrenches
in K-13 Roll Kit

SET No. MSBW-6T
6 Wrenches Only
Total Weight, 3.9 lbs.



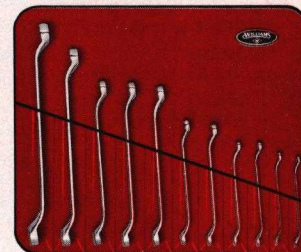
A basic set with openings from 8 to 30 mm.

Example of Order Nomenclature: "MSBW-6R SET IN ROLL"

No.	Openings	No.	Openings	No.	Openings
BWM-0810	8 & 10 mm	BWM-1618	16 & 18 mm	BWM-2124	21 & 24 mm
BWM-1315	13 & 15 mm	BWM-1719	17 & 19 mm	BWM-2730	27 & 30 mm

SET No. MSBW-11R
11 Wrenches
in K-19 Roll Kit

SET No. MSBW-11T
6 Wrenches Only
Total Weight, 7.7 lbs.



Here's a popular assortment which covers additional openings than Set MSBW-6R in the 8 to 30 mm range.

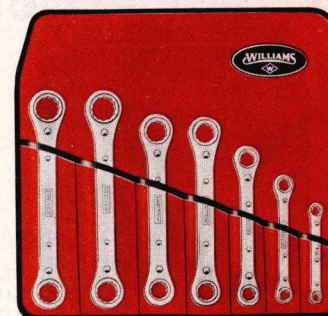
Example of Order Nomenclature: "MSBW-11R SET IN ROLL"

No.	Openings	No.	Openings	No.	Openings
BWM-0810	8 & 10 mm	BWM-1618	16 & 18 mm	BWM-2324	23 & 24 mm
BWM-0911	9 & 11 mm	BWM-1719	17 & 19 mm	BWM-2629	26 & 29 mm
BWM-1214	12 & 14 mm	BWM-2122	21 & 22 mm	BWM-2730	27 & 30 mm
BWM-1315	13 & 15 mm	BWM-2124	21 & 24 mm	.....	.....

RATCHETING BOX WRENCH SET

SET No. MSRB-7R
7 Wrenches
in K-15 Roll Kit

SET No. MSRB-7T
7 Wrenches Only
Total Weight, 4.5 lbs.



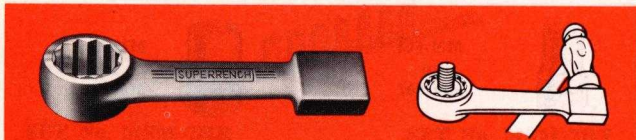
No.	Openings	No.	Openings	No.	Openings
RBM-0708	7 & 8 mm	RBM-1314	13 & 14 mm	RBM-1921	19 & 21 mm
RBM-0910	9 & 10 mm	RBM-1517	15 & 17 mm	.....	.....
RBM-1112	11 & 12 mm	RBM-1618	16 & 18 mm	.....	.....



METRIC STRIKING FACE WRENCHES

SELECTED ALLOY STEEL

STRAIGHT PATTERN—12-POINT OPENINGS



Heads are approximately as thick as the nuts they handle. Drop-forged and heat-treated. Finished in industrial gray.

No.	Nominal Opening mm	Head		Overall Length	Weight Each, lbs.
		Diameter	Thickness		
SFM-30	30	2- 3/16	13/16	7	1.4
SFM-32	32	2- 3/16	13/16	7	1.4
SFM-36	36	2- 5/16	1	8-1/4	2.1
SFM-41	41	2- 5/8	1- 1/8	9	3
SFM-46	46	2-15/16	1- 1/4	10	3.9
SFM-50	50	3- 1/2	1- 3/8	11	5.5
SFM-55	55	3- 1/2	1- 3/8	11	5.5
SFM-60	60	4- 1/8	1- 5/8	13	9.1
SFM-65	65	4- 1/8	1- 5/8	13	9.1
SFM-75	75	4- 3/4	1- 7/8	15-1/2	14.6
SFM-80	80	4- 3/4	1- 7/8	15-1/2	14.6
SFM-85	85	5- 1/4	2	17-1/4	18.9

METRIC STRIKING FACE WRENCHES

SELECTED ALLOY STEEL

OFFSET PATTERN—12-POINT OPENINGS



Drop-forged and heat-treated to withstand the necessary shocks. Finished in industrial gray.

No.	Nominal Opening mm	Head		Overall Length	Weight Each, lbs.
		Diameter	Thickness		
SFMO-27	27	1-11/16	13/16	10	2.1
SFMO-30	30	2- 1/16	7/8	11	2.5
SFMO-32	32	2- 1/16	7/8	11	2.5
SFMO-36	36	2- 1/4	1	11-1/2	3.5
SFMO-41	41	2- 9/16	1- 1/16	12	4.5
SFMO-46	46	2-13/16	1- 1/8	12-1/2	5.6
SFMO-50	50	3- 1/8	1- 1/4	13-1/2	6.6
SFMO-55	55	3-15/32	1- 3/8	14-3/8	8.8
SFMO-60	60	3-23/32	1- 1/2	14	9.5
SFMO-65	65	3-29/32	1- 5/8	14-1/2	10.4
SFMO-75	75	4-21/32	1- 7/8	16	15.3
SFMO-80	80	4-15/16	2	16-1/2	17.8

METRIC POWER DRIVE SOCKETS

Made from extra tough Selected Alloy Steel and specially heat-treated to withstand the constant shock and pounding involved in electric and pneumatic nut setting and power nut running. Industrial Finish. Single hexagon openings.

3/8 Inch SQUARE DRIVE



No.	Millimeter Opening	Nose Diameter	Depth Opening	Length	Wgt.
2M-607	7	7/16	1/8	1	.06
2M-608	8	31/64	5/32	1	.06
2M-609	9	17/32	7/32	1	.06
2M-610	10	19/32	13/64	1	.06
2M-611	11	41/64	7/32	1-1/16	.06
2M-612	12	45/64	1/4	1-1/16	.10
2M-613	13	3/4	1/4	1-1/8	.08
2M-614	14	13/16	5/16	1-1/8	.11
2M-615	15	27/32	3/8	1-3/16	.12
2M-616	16	59/64	3/8	1-3/16	.13
2M-617	17	31/32	23/64	1-3/16	.14
2M-618	18	1	7/16	1-3/16	.16
2M-619	19	1- 1/16	7/16	1-3/16	.17

No.	Description	Sq. Fem.	Male	Length	Wgt. Ea.
2-02A	Hex.-Sq. Shank	...	3/8 Sq x 1/4 Hex	2	.06
2-33A	Hex.-Sq. Shank	...	3/8 Sq x 7/16 Hex	2-3/4	.15
2-35A	Hex.-Sq. Shank	...	3/8 Sq x 7/16 Hex	5	.28
2-38A	Hex.-Sq. Shank	...	3/8 Sq x 7/16 Hex	8	.53
2-4A	Adapter	3/8	1/2 Square	1-3/8	.14
2-103A	Extension	3/8	3/8 Square	3	.09
2-106A	Extension	3/8	3/8 Square	6	.35
2-140A	Universal Joint, OD 7/8, range 55°	3/8	3/8 Square	2-5/16	.16

SET No. MS-2-13HR

13 Hex Sockets
with RB-5 and RB-10
Rails and Clips

SET No. MS-2-13HT

13 Sockets Only
Total Weight, 1.3 lbs.

One Ea.	Description	One Ea.	Description	One Ea.	Description
2M-607	7 mm Skt	2M-612	12 mm Skt	2M-617	17 mm Skt
2M-608	8 mm Skt	2M-613	13 mm Skt	2M-618	18 mm Skt
2M-609	9 mm Skt	2M-614	14 mm Skt	2M-619	19 mm Skt
2M-610	10 mm Skt	2M-615	15 mm Skt	.....	.....
2M-611	11 mm Skt	2M-616	16 mm Skt	.....	.....

1/2 Inch SQUARE DRIVE



No.	Millimeter Opening	Nose Diameter	Depth Opening	Length	Wgt.
4M-610	10	41/64	13/64	1-1/2	.15
4M-611	11	11/16	7/32	1-1/2	.15
4M-612	12	47/64	1/4	1-1/2	.19
4M-613	13	51/64	1/4	1-1/2	.19
4M-614	14	55/64	5/16	1-1/2	.16
4M-615	15	57/64	13/32	1-1/2	.18
4M-616	16	61/64	25/64	1-1/2	.20
4M-617	17	1- 1/64	25/64	1-1/2	.22
4M-618	18	1- 1/16	17/32	1-9/16	.25
4M-619	19	1- 9/64	7/16	1-5/8	.27
4M-621	21	1- 7/32	17/32	1-5/8	.27
4M-622	22	1- 5/16	33/64	1-5/8	.26
4M-624	24	1- 3/8	19/32	1-3/4	.34
4M-627	27	1-33/64	13/16	2	.35
4M-630	30	1-21/32	57/64	2-1/16	.41

No.	Description	Sq. Fem.	Male	Length	Wgt. Ea.
4-2A	Adapter	1/2	3/8 Square	1- 1/2	.13
4-33A	Hex.-Sq. Shank	...	1/2 Sq x 7/16 Hex	2- 3/4	.18
4-35A	Hex.-Sq. Shank	...	1/2 Sq x 7/16 Hex	5	.40
4-53A	Hex.-Sq. Shank	...	1/2 Sq x 5/8 Hex	3	.28
4-55A	Hex.-Sq. Shank	...	1/2 Sq x 5/8 Hex	5	.53
4-105A	Extension	1/2	1/2 Square	5- 1/2	.54
4-110A	Extension	1/2	1/2 Square	10	1.
4-140A	Universal Joint, OD 1-1/8, range 55°	1/2	1/2 Square	2-15/16	.36

SET No. MS-4-12HR

12 Hex Sockets
with RS-12 Rail and Clips

SET No. MS-4-12HT

12 Sockets Only
Total Weight, 3.1 lbs.

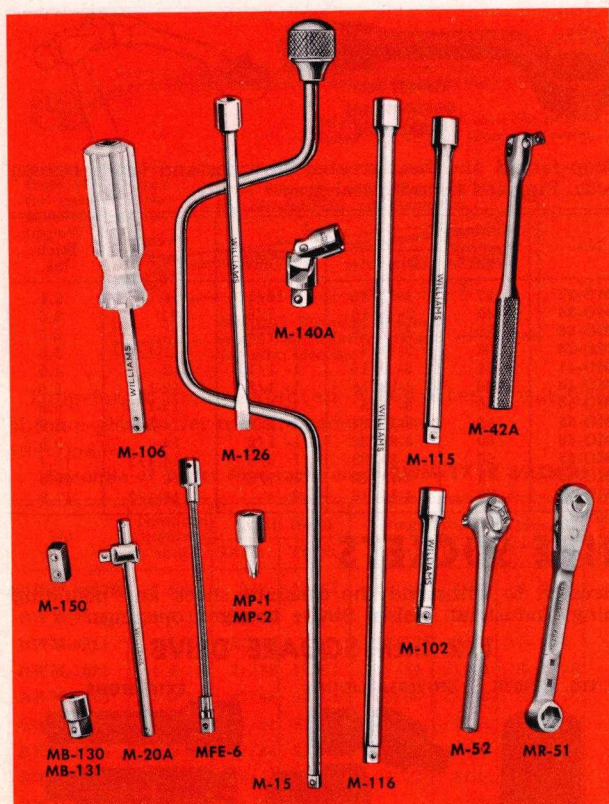
One Ea.	Description	One Ea.	Description	One Ea.	Description
4M-613	13 mm Skt	4M-617	17 mm Skt	4M-622	22 mm Skt
4M-614	14 mm Skt	4M-618	18 mm Skt	4M-624	24 mm Skt
4M-615	15 mm Skt	4M-619	19 mm Skt	4M-627	27 mm Skt
4M-616	16 mm Skt	4M-621	21 mm Skt	4M-630	30 mm Skt

1/4"

1/4 Inch SQUARE DRIVE METRIC SOCKETS and DRIVE TOOLS

SELECTED ALLOY STEEL

SELECTED ALLOY STEEL

MM-604
to
MM-607MM-608
to
MM-614

REGULAR 6-POINT SOCKETS

mm Opng.	No.	Nose Dia.	Dpth. Opng.	Lgth.	Wgt.
4	MM-604	17/64	1/8	27/32	.01
5	MM-605	5/16	1/8	27/32	.01
5.5	MM-605.5	11/32	1/8	27/32	.01
6	MM-606	23/64	1/8	27/32	.02
7	MM-607	13/32	1/8	27/32	.02
8	MM-608	29/64	5/32	27/32	.02
9	MM-609	1/2	3/16	27/32	.02
10	MM-610	35/64	13/64	27/32	.03
11	MM-611	39/64	7/32	27/32	.03
12	MM-612	41/64	1/4	27/32	.04
13	MM-613	11/16	1/4	27/32	.05
14	MM-614	49/64	5/16	27/32	.05

MMD-605
to
MMD-607MMD-608
to
MMD-613

Example of Order Nomenclature: "M-52 RATCHET"

No.	Description	Wgt.
M-15	Speeder—15-3/4" long; knurled revolving grip.....	.59
M-20A	Sliding T Handle—4-1/2" long.....	.10
M-42A	Flex Handle only—5-3/4" long; flexible head, knurled grip .....	.25
M-52	Reversible Ratchet—5" long. 45 teeth in Ratchet-gear. Shift-lever reverses action instantly.....	.16
MR-51	Reversible Refrigeration Ratchet—6" long. Has 1/4" female drive in head; 5/16", 1/4", and 3/16" square openings and 1/2" hex opening in handle.....	.29
M-102	Extension—2" long .....	.06
M-106	Spinner Handle has plastic grip with 1/4" square drive-opening in end—6" long .....	.19
M-115	Extension—6" long .....	.17
M-116	Extension—14" long .....	.35
M-126	Regular Screwdriver Socket Attachment—6" long.....	.09
MB-130	Adapter—1/4" sq. female and 3/8" sq. male. Adapts Handles with 1/4" sq. dr. to Sockets with 3/8" sq. dr. ....	.05
MB-131	Adapter—1/4" sq. male and 3/8" sq. female. Adapts Sockets with 1/4" sq. dr. to Handles with 3/8" sq. dr. ....	.05
M-140A	Universal Joint—Spring tension holds angle desired....	.04
M-150	Plug Adapter 3/4" long; both ends 1/4" sq. male.....	.02
MFE-6	Flexible Extension—6" long. Extremely useful in hard to reach spots. Strong flexible 1/4" dia. cable.....	.10
MP-1	Phillips Screwdriver Socket Attachment—No. 1 Phillips Drive to fit screws No. 4 and smaller.....	.02
MP-2	Phillips Screwdriver Socket Attachment—No. 2 Phillips Drive to fit screws Nos. 5 to 9 inclusive.....	.03

EXTRA DEEP 6-POINT SOCKETS

mm Opng.	No.	Nose Dia.	Dpth. Opng.	Lgth.	Wgt.
5	MMD-605	19/64	1/8	2	.03
5.5	MMD-605.5	21/64	1/8	2	.03
6	MMD-606	23/64	3/16	2	.03
7	MMD-607	13/32	7/32	2	.04
8	MMD-608	29/64	7/32	2	.04
9	MMD-609	1/2	7/32	2	.06
10	MMD-610	35/64	1/4	2	.06
11	MMD-611	39/64	9/32	2	.08
12	MMD-612	41/64	5/16	2	.08
13	MMD-613	45/64	21/64	2	.09

M-42RK FLEX HANDLE REPAIR KIT



Qty.	No.	Description
1	M-42A-1	Drive Tang
1	M-42A-2	Spring
1	M-42A-3	Hinge Pin

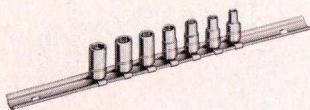
MPA-52 RATCHET REPAIR KIT

All necessary parts for repair of M-52 ratchet. Sold individually as M-52RK or in kit of five as below, with instructions.

Qty.	No.	Description	Wgt. Ea., Lbs.
5	M-52RK	M-52RU and M-52G Gland	.09

1/4 Inch SQUARE DRIVE METRIC SOCKET SETS

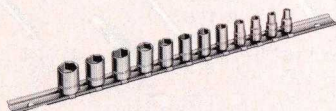
1/4"

**SET No. MSM-7HR**7 Hex Sockets
with RM-10 Rail and Clips

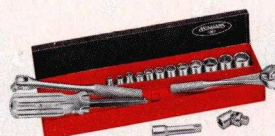
One Ea.	Description	One Ea.	Description	One Ea.	Description
MM-604	4 mm Skt	MM-607	7 mm Skt	MM-613	13 mm Skt
MM-605	5 mm Skt	MM-608	8 mm Skt	.....	.....
MM-605.5	5.5 mm Skt	MM-610	10 mm Skt	.....	.....

SET No. MSM-7HT7 Sockets Only
Total Weight, .15 lb.**SET No. MSM-10**10 Tools in TB-1A Metal Tool Box
9-1/4" x 2-1/4" x 1-1/4"
Total Weight, 1.4 lbs.**SET No. MSM-10T**10 Tools Only
Total Weight, .56 lb.

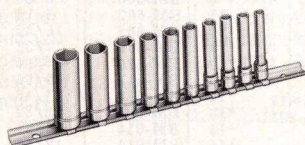
One Ea.	Description	One Ea.	Description	One Ea.	Description
MM-604	4 mm Skt	MM-608	8 mm Skt	M-102	2" Ext'n
MM-605	5 mm Skt	MM-610	10 mm Skt	M-106	Spinner Hdle
MM-605.5	5.5 mm Skt	MM-613	13 mm Skt	.....	.....
MM-607	7 mm Skt	M-52	Ratchet	.....	.....

**SET No. MSM-12HR**12 Hex Sockets
with RM-12 Rail and Clips

One Ea.	Description	One Ea.	Description	One Ea.	Description
MM-604	4 mm Skt	MM-607	7 mm Skt	MM-611	11 mm Skt
MM-605	5 mm Skt	MM-608	8 mm Skt	MM-612	12 mm Skt
MM-605.5	5.5 mm Skt	MM-609	9 mm Skt	MM-613	13 mm Skt
MM-606	6 mm Skt	MM-610	10 mm Skt	MM-614	14 mm Skt

SET No. MSM-12HT12 Sockets Only
Total Weight, .31 lb.**SET No. MSM-17**17 Tools in TB-1A Metal Tool Box
9-1/4" x 2-1/4" x 1-1/4"
Total Weight, 1.9 lbs.**SET No. MSM-17T**17 Tools Only
Total Weight, 1 lb.

One Ea.	Description	One Ea.	Description	One Ea.	Description
MM-604	4 mm Skt	MM-609	9 mm Skt	M-42A	Flex Handle
MM-605	5 mm Skt	MM-610	10 mm Skt	M-52	Ratchet
MM-605.5	5.5 mm Skt	MM-611	11 mm Skt	M-102	2" Ext'n
MM-606	6 mm Skt	MM-612	12 mm Skt	M-106	Spinner Hdle
MM-607	7 mm Skt	MM-613	13 mm Skt	M-140A	Universal Jt
MM-608	8 mm Skt	MM-614	14 mm Skt	.....	.....

**SET No. MSMD-10HR**10 Deep Hex Sockets
with RM-10 Rail and Clips

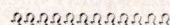
One Ea.	Description	One Ea.	Description	One Ea.	Description
MMD-605	5 mm Deep	MMD-608	8 mm Deep	MMD-612	12 mm Deep
MMD-605.5	5.5 mm Deep	MMD-609	9 mm Deep	MMD-613	13 mm Deep
MMD-606	6 mm Deep	MMD-610	10 mm Deep	.....	.....
MMD-607	7 mm Deep	MMD-611	11 mm Deep	.....	.....

SET No. MSMD-10HT10 Sockets Only
Total Weight, .54 lb.**SET No. MSM-28**28 Tools in TB-3A Metal Tool Box
9-1/2" x 3-1/2" x 1-1/4"
Total Weight, 2.8 lbs.**SET No. MSM-28T**28 Tools Only
Total Weight, 1.7 lbs.

One Ea.	Description	One Ea.	Description	One Ea.	Description
MM-604	4 mm Skt	MM-613	13 mm Skt	MMD-612	12 mm Deep
MM-605	5 mm Skt	MM-614	14 mm Skt	MMD-613	13 mm Deep
MM-605.5	5.5 mm Skt	MMD-605	5 mm Deep	M-42A	Flex Handle
MM-606	6 mm Skt	MMD-605.5	5.5 mm Deep	M-52	Ratchet
MM-607	7 mm Skt	MMD-606	6 mm Deep	M-102	2" Ext'n
MM-608	8 mm Skt	MMD-607	7 mm Deep	M-106	Spinner Hdle
MM-609	9 mm Skt	MMD-608	8 mm Deep	M-115	6" Ext'n
MM-610	10 mm Skt	MMD-609	9 mm Deep	M-140A	Universal Jt
MM-611	11 mm Skt	MMD-610	10 mm Deep	.....	.....
MM-612	12 mm Skt	MMD-611	11 mm Deep	.....	.....

RAILS AND CLIPS FOR 1/4" THROUGH 1/2" DRIVE SOCKET SETS

RAIL AND CLIPS



CLIPS ONLY



RAILS ONLY



Rail and clips are handy ways to store sockets. Screw holes at either end of rail permit fastening. Clips slide along rails and sockets slip into clips at drive side. Available as follows: clips only, rails only, or rail and clips. Bright finish. Shipped unassembled.

RAILS AND CLIPS

1/4" Drive				3/8" Drive				1/2" Drive			
No.	Lgth.	No. of Clips	Wgt., Ea. Lbs.	No.	Lgth.	No. of Clips	Wgt., Ea. Lbs.	No.	Lgth.	No. of Clips	Wgt., Ea. Lbs.
RM-10	9"	10	.16	RB-5	9"	5	.18	RS-5	9"	5	.21
RM-12	17"	12	.25	RB-10	17"	10	.25	RS-10	17"	10	.28
.....	.....	.....	.....	RB-12	17"	12	.27	RS-12	17"	12	.31

CLIPS ONLY

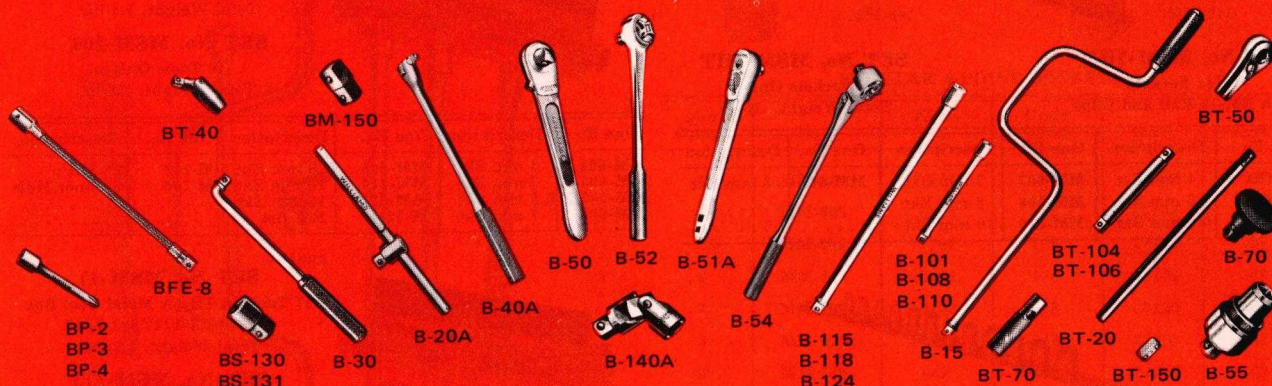
No. RC-25P 25-1/4" Drive Socket Clips Weight, .10 lbs.				No. RC-37P 25-3/8" Drive Socket Clips Weight, .15 lbs.				No. RC-50P 25-1/2" Drive Socket Clips Weight, .30 lbs.			
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RAILS ONLY

R-9 R-17				One 9" long socket rail for use with 1/4" through 1/2" clips One 17" long socket rail for use with 1/4" through 1/2" clips				Weight, .15 lbs. Weight, .25 lbs.			
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3/8"

3/8 Inch SQUARE DRIVE METRIC SOCKETS and DRIVE TOOLS



4

METRIC TOOLS

No.	Description	Wgt.
B-15	Speeder—16-1/8" long; Knurled revolving grip.....	1.1
B-20A	Sliding T Handle—6-1/2" long.....	.26
B-30	Offset Handle—7-3/4" long; Knurled grip.....	.50
B-40A	Flex Handle—9-5/8"; flexible head, knurled grip.....	.57
B-50	Drop-Forged Ratchet—6-1/2" long; complete with No. B-150 Plug-Connector.....	.43
B-51A	Reversible Ratchet for Refrigeration Service—6-1/2" long. 24 teeth in ratchet-gear. Has both 3/8" square male and 1/4" square female ratchet drive. Also has 3/16" and 1/4" square drive holes in handle end.....	.44
B-52	Reversible Ratchet—7-5/8" long. Concentric type Mechanism of 82 tooth action permits rotation of nuts in close quarters. Shift lever reverses action.....	.56
B-54	Flex Head Ratchet—Same mechanism as B-52. Handle flexes 90° either way from horizontal. 10-1/2" long.....	.81
B-55	Ratchet Adapter—41 teeth. 2-1/8" long; outside diameter 1-3/16". Knurled shifter reverses action.....	.31
B-70	Ratchet Spinner. Place between ratchet and socket for fast spinning of nuts by hand. 1-5/16" dia.....	.16
B-101	Extension Bar—1-1/2" long.....	.10
B-108	Extension Bar—3" long.....	.16
B-110	Extension Bar—6" long.....	.35
B-115	Extension Bar—10-1/2" long.....	.44
B-118	Extension Bar—18" long.....	.84
B-124	Extension Bar—24" long.....	1.
B-140A	Universal Joint—Fitted with spring tension to maintain operating angle desired—range approx. 140°.....	.13
B-150	Ratchet Plug-Connector for B-50 Ratchet.....	.03
BFE-8	Flexible Extension—8" long. Extremely useful in hard to reach spots. Exceptionally strong flexible 5/16" diam. cable.....	.22
BM-150	Adapter—3/8" square male and 1/4" square male.....	.03
BP-2	Phillips No. 2 Screwdriver, fits Screws Nos. 5 to 9.....	.06
BP-3	Phillips No. 3 Screwdriver, fits Screws Nos. 10 to 16.....	.13
BP-4	Phillips No. 4 Screwdriver, fits Screws No. 18 and larger.....	.13
BS-130	Adapter—3/8" square female and 1/2" square male.....	.13
BS-131	Adapter—3/8" square male and 1/2" square female.....	.15
BT-20	Combo Tee Bar—7-1/2" long, fits BT-70 Handle Grip.....	.23
BT-40	Combo Flex Head—2-1/4" long, 3/8" male x 3/8" female.....	.13
BT-50	Combo Reversible Ratchet Head—2-13/16" long.....	.29
BT-70	Combo Handle Grip—2-5/8" long, 3/8" female with cross hole.....	.11
BT-104	Combo Extension Bar—3-3/4" long, 3/8" male both ends.....	.19
BT-106	Combo Extension Bar—6" long, 3/8" male both ends.....	.30
BT-150	Combo Ratchet Plug Connector—1" long, 3/8" x 3/8" male.....	.03

mm Opng.	No.	Nose Dia.	Dpth. Opng.	Lgth.	Wgt.
REGULAR *6 and 12-POINT SOCKETS					
*6	BM-606	3/8	15/64	1-1/8	.05
*7	BM-607	7/16	11/64	1-1/8	.05
*8	BM-608	15/32	1/4	1-1/8	.05
*9	BM-609	17/32	11/32	1-1/8	.05
*10	BM-610	37/64	1/4	1-1/8	.05
*11	BM-611	39/64	5/16	1-1/8	.06
*12	BM-612	11/16	3/8	1-3/16	.05
*13	BM-613	23/32	5/16	1-3/16	.07
*14	BM-614	49/64	3/8	1-3/16	.09
*15	BM-615	13/16	29/64	1-3/16	.09
*16	BM-616	27/32	13/32	1-3/16	.09
*17	BM-617	59/64	15/32	1-3/16	.11
*18	BM-618	61/64	13/32	1-3/16	.11
*19	BM-619	1	1/2	1-3/16	.15
9	BM-1209	17/32	5/16	1-1/8	.05
10	BM-1210	37/64	1/4	1-1/8	.05
11	BM-1211	39/64	5/16	1-1/8	.05
12	BM-1212	11/16	25/64	1-3/16	.06
13	BM-1213	23/32	21/64	1-3/16	.06
14	BM-1214	49/64	25/64	1-3/16	.07
15	BM-1215	13/16	23/64	1-3/16	.08
16	BM-1216	27/32	25/64	1-3/16	.09
17	BM-1217	59/64	29/64	1-3/16	.11
18	BM-1218	61/64	13/32	1-3/16	.12
19	BM-1219	1	15/32	1-3/16	.13
20	BM-1220	1-1/16	17/32	1-1/4	.17
21	BM-1221	1-1/16	31/64	1-1/4	.17
22	BM-1222	1-9/64	17/32	1-1/4	.18
24	BM-1224	1-1/4	19/32	1-3/8	.19

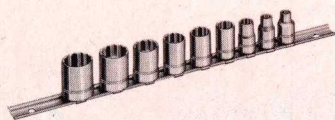
mm Opng.	No.	Nose Dia.	Dpth. Opng.	Lgth.	Wgt.
EXTRA DEEP 6-POINT SOCKETS					
8	BMD-608	15/32	9/32	2	.09
9	BMD-609	35/64	5/16	2	.09
10	BMD-610	35/64	3/8	2	.09
11	BMD-611	5/8	3/8	2	.10
12	BMD-612	11/16	7/16	2	.10
13	BMD-613	23/32	1/2	2	.10
14	BMD-614	25/32	1/2	2	.13
15	BMD-615	27/32	1/2	2-1/4	.16
16	BMD-616	27/32	17/32	2-1/4	.16
17	BMD-617	15/16	9/16	2-3/8	.22
18	BMD-618	15/16	9/16	2-3/8	.22
19	BMD-619	1	19/32	2-1/2	.22

mm Opng.	No.	Nose Dia.	Dpth. Opng.	Lgth.	Wgt.
UNIVERSAL 6-POINT SOCKETS					
8	BMU-608	15/32	9/32	1-25/32	.11
9	BMU-609	17/32	1/4	1-25/32	.11
10	BMU-610	17/32	1/4	1-25/32	.11
11	BMU-611	39/64	9/32	1-13/16	.11
12	BMU-612	11/16	5/16	1-27/32	.11
13	BMU-613	11/16	5/16	1-27/32	.11
14	BMU-614	49/64	11/32	1-57/64	.12
15	BMU-615	27/32	3/8	1-61/64	.13
16	BMU-616	7/8	13/32	1-61/64	.13
17	BMU-617	59/64	13/32	1-63/64	.13
18	BMU-618	31/32	7/16	2-1/64	.14
19	BMU-619	63/64	7/16	2-1/64	.15

SOCKET RAILS AND CLIPS ARE LISTED IN DETAIL ON PAGE 65

3/8 Inch SQUARE DRIVE METRIC SOCKET SETS

3/8"

**SET No. MSB-9R**

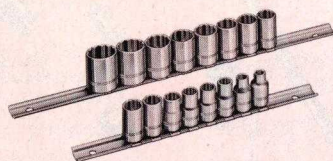
9 6 and 12-Point Sockets*
with RB-10 Rail and Clips

SET No. MSB-9T

Sockets Only
Total Weight, .86 lb.

This starter set provides basic coverage.

One Ea.	Description	One Ea.	Description	One Ea.	Description
BM-607	7 mm Skt	BM-1213	13 mm Skt	BM-1218	18 mm Skt
BM-608	8 mm Skt	BM-1215	15 mm Skt	BM-1221	21 mm Skt
BM-1210	10 mm Skt	BM-1216	16 mm Skt	BM-1224	24 mm Skt

**SET No. MSB-16R**

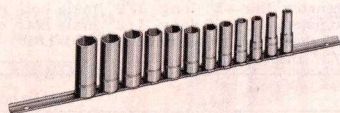
16 6 and 12-Point Sockets
with RB-12 and RB-5 Rails and Clips

SET No. MSB-16T

Sockets Only
Total Weight, 1.5 lbs.

Here's an assortment which gives good coverage.

One Ea.	Description	One Ea.	Description	One Ea.	Description
BM-607	7 mm Skt	BM-1213	13 mm Skt	BM-1219	19 mm Skt
BM-608	8 mm Skt	BM-1214	14 mm Skt	BM-1221	21 mm Skt
BM-1209	9 mm Skt	BM-1215	15 mm Skt	BM-1222	22 mm Skt
BM-1210	10 mm Skt	BM-1216	16 mm Skt	BM-1224	24 mm Skt
BM-1211	11 mm Skt	BM-1217	17 mm Skt	.....	.....
BM-1212	12 mm Skt	BM-1218	18 mm Skt	.....	.....

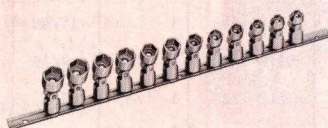
**SET No. MSBD-12HR**

12 Deep Hex Sockets
with RB-12 Rail and Clips

SET No. MSBD-12HT

Sockets Only
Total Weight, 1.7 lbs.

One Ea.	Description	One Ea.	Description	One Ea.	Description
BMD-608	8 mm Deep	BMD-612	12 mm Deep	BMD-616	16 mm Deep
BMD-609	9 mm Deep	BMD-613	13 mm Deep	BMD-617	17 mm Deep
BMD-610	10 mm Deep	BMD-614	14 mm Deep	BMD-618	18 mm Deep
BMD-611	11 mm Deep	BMD-615	15 mm Deep	BMD-619	19 mm Deep

**SET No. MSBU-12HR**

12 Hex Universal Sockets
with RB-12 Rail and Clips

SET No. MSBU-12HT

Sockets Only
Total Weight, 1.5 lbs.

One Ea.	Description	One Ea.	Description	One Ea.	Description
BMU-608	8 mm Univ	BMU-612	12 mm Univ	BMU-616	16 mm Univ
BMU-609	9 mm Univ	BMU-613	13 mm Univ	BMU-617	17 mm Univ
BMU-610	10 mm Univ	BMU-614	14 mm Univ	BMU-618	18 mm Univ
BMU-611	11 mm Univ	BMU-615	15 mm Univ	BMU-619	19 mm Univ

*Selected sizes to fit latest international standards (I.S.O.) specifications.

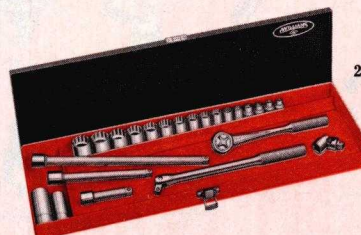
SET No. MSB-13

13 Tools* in TB-2A Metal Tool Box
10" x 2-13/16" x 1-3/8"
Total Weight, 3.0 lbs.

**SET No. MSB-13T**

Tools Only
Total Weight, 1.7 lbs.

One Ea.	Description	One Ea.	Description	One Ea.	Description
BM-607	7 mm Skt	BM-1216	16 mm Skt	B-101	1-1/2" Ext'n
BM-608	8 mm Skt	BM-1218	18 mm Skt	B-108	3" Ext'n
BM-1210	10 mm Skt	BM-1221	21 mm Skt	B-140A	Universal Jt
BM-1213	13 mm Skt	BM-1224	24 mm Skt	.....	.....
BM-1215	15 mm Skt	B-52	Ratchet	.....	.....

**SET No. MSB-24**

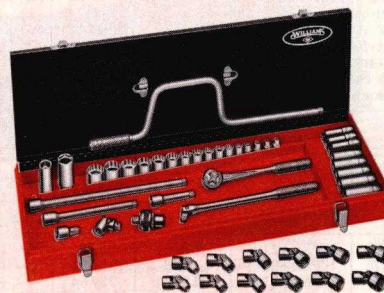
24 Tools in TB-4A Metal Tool Box
19-1/2" x 5-7/8" x 1-3/8"
Total Weight, 7.4 lbs.

SET No. MSB-24T

Tools Only
Total Weight, 4.2 lbs.

Here's an excellent set for basic maintenance.

One Ea.	Description	One Ea.	Description	One Ea.	Description
BM-607	7 mm Skt	BM-1215	15 mm Skt	B-40A	Flex Handle
BM-608	8 mm Skt	BM-1216	16 mm Skt	B-52	Ratchet
BM-1209	9 mm Skt	BM-1217	17 mm Skt	B-108	3" Ext'n
BM-1210	10 mm Skt	BM-1218	18 mm Skt	B-110	6" Ext'n
BM-1211	11 mm Skt	BM-1219	19 mm Skt	B-115	10-1/2" Ext'n
BM-1212	12 mm Skt	BM-1221	21 mm Skt	B-140A	Universal Jt
BM-1213	13 mm Skt	BM-1222	22 mm Skt	BD-620P	5/8" S.P. Skt
BM-1214	14 mm Skt	BM-1224	24 mm Skt	BD-626P	13/16" S.P. Skt

**SET No. MSB-51**

51 Tools in TB-7 Metal Tool Box
23" x 7-3/4" x 2-1/4"
Total Weight, 15.2 lbs.

SET No. MSB-51T

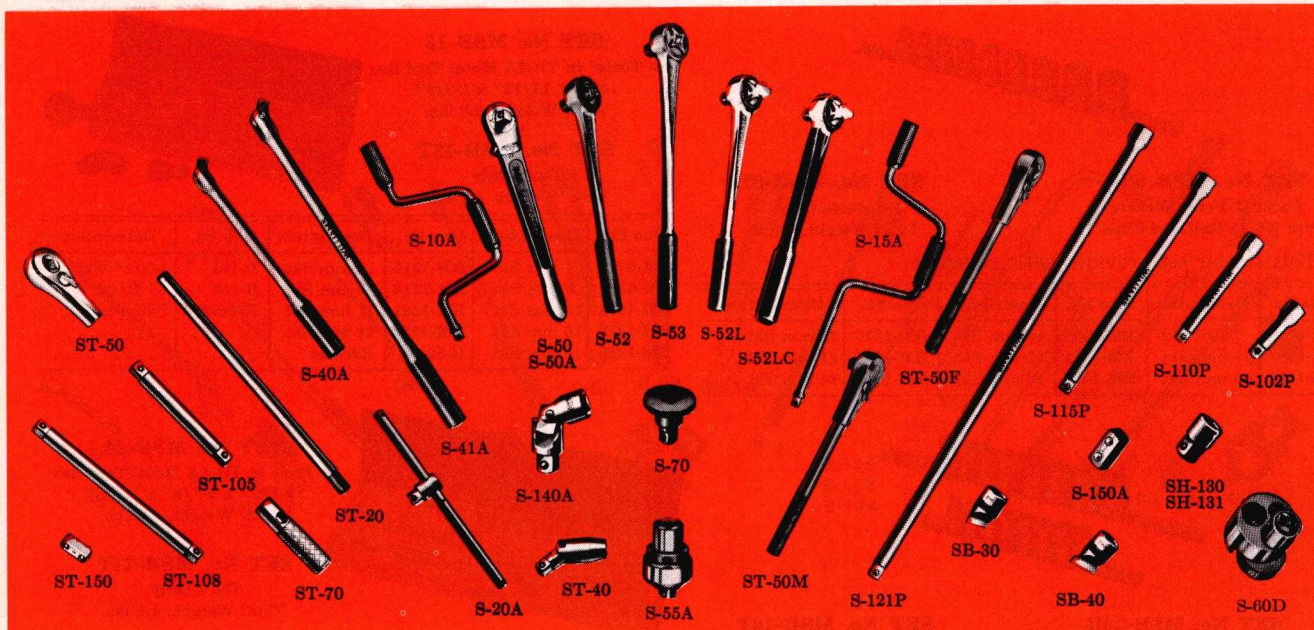
Tools Only
Total Weight, 8.8 lbs.

Versatility and flexibility is this set's feature. A good assortment of drivers and accessories back up 3 series of sockets.

One Ea.	Description	One Ea.	Description	One Ea.	Description
BM-607	7 mm Skt	BMD-609	9 mm Deep	BMU-614	14 mm Univ
BM-608	8 mm Skt	BMD-610	10 mm Deep	BMU-615	15 mm Univ
BM-1209	9 mm Skt	BMD-611	11 mm Deep	BMU-616	16 mm Univ
BM-1210	10 mm Skt	BMD-612	12 mm Deep	BMU-617	17 mm Univ
BM-1211	11 mm Skt	BMD-613	13 mm Deep	BMU-618	18 mm Univ
BM-1212	12 mm Skt	BMD-614	14 mm Deep	BMU-619	19 mm Univ
BM-1213	13 mm Skt	BMD-615	15 mm Deep	B-15	Speeder
BM-1214	14 mm Skt	BMD-616	16 mm Deep	B-40A	Flex Handle
BM-1215	15 mm Skt	BMD-617	17 mm Deep	B-52	Ratchet
BM-1216	16 mm Skt	BMD-618	18 mm Deep	B-55	Ratchet Adapter
BM-1217	17 mm Skt	BMD-619	19 mm Deep	B-101	1-1/2" Ext'n
BM-1218	18 mm Skt	BMU-608	8 mm Univ	B-108	3" Ext'n
BM-1219	19 mm Skt	BMU-609	9 mm Univ	B-110	6" Ext'n
BM-1221	21 mm Skt	BMU-610	10 mm Univ	B-115	10-1/2" Ext'n
BM-1222	22 mm Skt	BMU-611	11 mm Univ	B-140A	Universal Jt
BM-1224	24 mm Skt	BMU-612	12 mm Univ	BD-620P	5/8" S.P. Skt
BMD-608	8 mm Deep	BMU-613	13 mm Univ	BD-626P	13/16" S.P. Skt



1/2"



1/2 Inch SQUARE DRIVE METRIC SOCKETS and DRIVE TOOLS



No.	Description	Wgt.
S-10A	Speeder —13-7/16" long, with knurled revolving grips.....	1.8
S-15A	Speeder —18-7/8" long, with knurled revolving grips.....	2.
S-20A	Sliding T Handle —11" long.....	.96
S-40A	Flex Handle —12-1/8" long; flexible head, knurled grip.....	1.4
S-41A	Flex Handle —17" long; flexible head, knurled grip.....	1.8
S-50	Ratchet —10" long, with Locked-in Plug Connector.....	1.3
S-50A	Ratchet —10" long, without Plug Connector.....	1.3
S-52	Reversible Ratchet —11-1/4" long. 82 tooth action. Shifter reverses action instantly.....	1.2
S-52L	Linemen's Reversible Ratchet —11-1/4" long, 82 tooth action. Special shifter for operators using gloves.....	1.3
S-52LC	Linemen's Reversible Ratchet —11-1/2" long. Same as S-52L with Cement insulated handle up to head.....	1.5
S-53	Reversible Ratchet —15" long. Has same fine mech- anism as S-52 Ratchet.....	1.6
S-55A	Ratchet Adapter —41 teeth. 2-5/8" long; outside diam- eter 1-5/8". Knurled shifter reverses action instantly.....	.66
S-60D	Stud Remover . Stud capacity 1/4" to 3/4".....	.52
S-70	Ratchet Spinner —1-3/4" diameter. Use between ratchet and socket to spin nuts fast by hand.....	.3

No.	Description	Wgt.
S-102P	Extension Bar—2-1/2" long	.27
S-110P	Extension Bar—5-1/2" long	.53
S-115P	Extension Bar—10" long	1.
S-121P	Extension Bar—20" long	3.1
S-140A	Universal Joint—Spring tension maintains angle	.24
S-150A	Ratchet Plug-Connector for S-50 Ratchet	.08
SB-30	Screwdriver "drag link" Socket—5/32 x 15/16" blade	.14
SB-40	Screwdriver "drag link" Socket—5/32 x 1-1/4" blade	.16
SH-130	Adapter—1/2" square female and 3/4" square male	.31
SH-131	Adapter—1/2" square male and 3/4" square female	.44
ST-20	Combo Tee Bar—10-1/4" long, fits ST-70 Handle Grip	.58
ST-40	Combo Flex Head—3-1/16" long, 1/2" M x 1/2" F	.31
ST-50	Combo Reversible Ratchet Head—3-3/4" long	.70
ST-50F	Reversible Ratchet—10-1/2" long, 1/2" F in head	1.6
ST-50M	Reversible Ratchet—10-1/2", 1/2" Male in head	1.7
ST-70	Combo Handle Grip—3-1/2", 1/2" F with cross hole	.28
ST-105	Combo Extension Bar—5" long, 1/2" male both ends	.41
ST-108	Combo Extension Bar—8" long, 1/2" male both ends	.66
ST-150	Combo Ratchet Plug Connector—1-1/4" long, 1/2" x 1/2" male	.08

	mm Opng.	No.	Nose Dia.	Dpth. Opng.	Lgth.	Wgt.
REGULAR 12-POINT SOCKETS						
	10	STM-1210	37/64	23/64	1- 1/2	.11
	11	STM-1211	5/8	23/64	1- 1/2	.11
	12	STM-1212	43/64	25/64	1- 1/2	.11
	13	STM-1213	47/64	25/64	1- 1/2	.11
	14	STM-1214	25/32	27/64	1- 1/2	.11
	15	STM-1215	53/64	7/16	1-17/32	.13
STM-1210 to STM-1215	16	STM-1216	7/8	15/32	1-17/32	.13
	17	STM-1217	15/16	33/64	1-17/32	.14
	18	STM-1218	31/32	9/16	1- 9/16	.17
	19	STM-1219	1- 1/64	9/16	1- 9/16	.17
	20	STM-1220	1- 3/64	19/32	1- 9/16	.19
	21	STM-1221	1- 1/8	5/8	1-19/32	.23
	22	STM-1222	1-11/64	5/8	1-41/64	.27
	23	STM-1223	1-13/64	21/32	1-41/64	.28
	24	STM-1224	1-15/64	21/32	1-41/64	.28
STM-1216 to STM-1236	25	STM-1225	1-19/64	11/16	1-11/16	.33
	26	STM-1226	1-25/64	13/16	1-27/32	.47
	27	STM-1227	1- 7/16	13/16	1-27/32	.47
	28	STM-1228	1-15/32	13/16	1-27/32	.48
	29	STM-1229	1- 1/2	13/16	1-27/32	.52
	30	STM-1230	1-19/32	27/32	1-29/32	.59
	31	STM-1231	1- 5/8	27/32	1-29/32	.66
	32	STM-1232	1-21/32	7/8	2	.69
	33	STM-1233	1-47/64	7/8	2	.78
	34	STM-1234	1-49/64	15/16	2- 1/8	.81
	35	STM-1235	1-53/64	15/16	2- 1/8	.86
	36	STM-1236	2	15/16	2- 1/8	.92

	mm Opng.	No.	Nose Dia.	Dpth. Opng.	Lgth.	Wgt.
EXTRA DEEP 12-POINT SOCKETS						
 <p>SMD-1213 and SMD-1214</p>	13	SMD-1213	47/64	25/64	3- 1/4	.26
	14	SMD-1214	25/32	13/32	3- 1/4	.26
	15	SMD-1215	53/64	7/16	3- 1/4	.26
	16	SMD-1216	55/64	15/32	3- 1/4	.26
	17	SMD-1217	15/16	15/32	3- 1/4	.26
 <p>SMD-1218 SMD-1219 SMD-1221 SMD-1222 SMD-1224 SMD-1227 SMD-1230</p>	18	SMD-1218	1	17/32	3- 1/4	.26
	19	SMD-1219	1- 1/32	9/16	3- 1/4	.37
	21	SMD-1221	1- 1/8	5/8	3- 1/4	.37
	22	SMD-1222	1- 3/16	21/32	3- 1/4	.49
	24	SMD-1224	1- 1/4	45/64	3- 1/4	.54
	27	SMD-1227	1-13/32	51/64	3- 1/4	.62
	30	SMD-1230	1- 9/16	51/64	3- 1/4	.79

SOCKET RAILS AND CLIPS
ARE LISTED ON PAGE 65

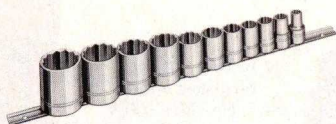
1/2 Inch SQUARE DRIVE METRIC SOCKET SETS

1/2"

SET No. MSS-11R11 12-Point Sockets*
with RS-12 Rail and Clips**SET No. MSS-11T**

Sockets Only

Total Weight, 4.0 lbs.



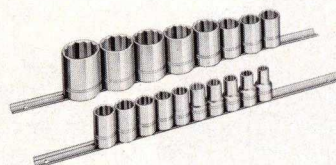
This basic assortment is a good starter set.

One Ea.	Description	One Ea.	Description	One Ea.	Description
STM-1210	10 mm Skt	STM-1218	18 mm Skt	STM-1230	30 mm Skt
STM-1213	13 mm Skt	STM-1221	21 mm Skt	STM-1234	34 mm Skt
STM-1215	15 mm Skt	STM-1224	24 mm Skt	STM-1236	36 mm Skt
STM-1216	16 mm Skt	STM-1227	27 mm Skt	.....	.....

SET No. MSS-18R18 12-Point Sockets
with 2 RS-10 Rails and Clips**SET No. MSS-18T**

Sockets Only

Total Weight, 5.6 lbs.



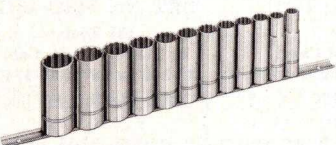
Handling the same opening range as set MSS-11R, this set provides additional coverage.

One Ea.	Description	One Ea.	Description	One Ea.	Description
STM-1210	10 mm Skt	STM-1216	16 mm Skt	STM-1224	24 mm Skt
STM-1211	11 mm Skt	STM-1217	17 mm Skt	STM-1227	27 mm Skt
STM-1212	12 mm Skt	STM-1218	18 mm Skt	STM-1230	30 mm Skt
STM-1213	13 mm Skt	STM-1219	19 mm Skt	STM-1232	32 mm Skt
STM-1214	14 mm Skt	STM-1221	21 mm Skt	STM-1234	34 mm Skt
STM-1215	15 mm Skt	STM-1222	22 mm Skt	STM-1236	36 mm Skt

SET No. MSSD-12R12 Deep 12-Pt. Sockets
with RS-12 Rail and Clips**SET No. MSSD-12T**

Sockets Only

Total Weight, 4.8 lbs.



Here's a basic assortment of deep sockets.

One Ea.	Description	One Ea.	Description	One Ea.	Description
SMD-1213	13 mm Deep	SMD-1217	17 mm Deep	SMD-1222	22 mm Deep
SMD-1214	14 mm Deep	SMD-1218	18 mm Deep	SMD-1224	24 mm Deep
SMD-1215	15 mm Deep	SMD-1219	19 mm Deep	SMD-1227	27 mm Deep
SMD-1216	16 mm Deep	SMD-1221	21 mm Deep	SMD-1230	30 mm Deep

SET No. MSS-1414 Tools* in TB-5 Metal Tool Box
12-1/2" x 3-3/4" x 2-1/4"
Total Weight, 7.9 lbs.**SET No. MSS-14T**

Tools Only

Total Weight, 6.0 lbs.



This set features the S-52 Superratchet which turns sockets with a handle swing of only 4-1/2°.

One Ea.	Description	One Ea.	Description	One Ea.	Description
STM-1210	10 mm Skt	STM-1221	21 mm Skt	STM-1236	36 mm Skt
STM-1213	13 mm Skt	STM-1224	24 mm Skt	S-52	Ratchet
STM-1215	15 mm Skt	STM-1227	27 mm Skt	S-110P	5-1/2" Ext'n
STM-1216	16 mm Skt	STM-1230	30 mm Skt	S-140A	Universal Jt
STM-1218	18 mm Skt	STM-1234	34 mm Skt	.....	.....

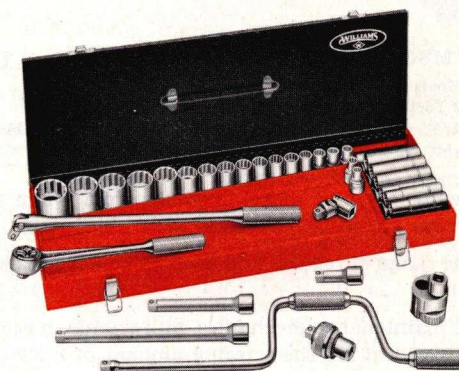
**SET No. MSS-23**23 Tools in TB-7 Metal Tool Box
23" x 7-3/4" x 2-1/4"
Total Weight, 16.8 lbs.**SET No. MSS-23T**

Tools Only

Total Weight, 10.4 lbs.

A no-nonsense assortment of two drivers plus a full complement of regular sockets with basic accessories handles many applications.

One Ea.	Description	One Ea.	Description	One Ea.	Description
STM-1210	10 mm Skt	STM-1218	18 mm Skt	STM-1234	34 mm Skt
STM-1211	11 mm Skt	STM-1219	19 mm Skt	STM-1236	36 mm Skt
STM-1212	12 mm Skt	STM-1221	21 mm Skt	S-41A	Flex Handle
STM-1213	13 mm Skt	STM-1222	22 mm Skt	S-52	Ratchet
STM-1214	14 mm Skt	STM-1224	24 mm Skt	S-110P	5-1/2" Ext'n
STM-1215	15 mm Skt	STM-1227	27 mm Skt	S-115P	10" Ext'n
STM-1216	16 mm Skt	STM-1230	30 mm Skt	S-140A	Universal Jt
STM-1217	17 mm Skt	STM-1232	32 mm Skt	.....	.....

**SET No. MSS-39**39 Tools in TB-7 Metal Tool Box
23" x 7-3/4" x 2-1/4"
Total Weight, 25.2 lbs.**SET No. MSS-39T**

Tools Only

Total Weight, 18.6 lbs.

A selection of regular or deep sockets and three drivers plus several accessories provides maintenance versatility.

One Ea.	Description	One Ea.	Description	One Ea.	Description
STM-1210	10 mm Skt	STM-1227	27 mm Skt	SMD-1222	22 mm Deep
STM-1211	11 mm Skt	STM-1230	30 mm Skt	SMD-1224	24 mm Deep
STM-1212	12 mm Skt	STM-1232	32 mm Skt	SMD-1227	27 mm Deep
STM-1213	13 mm Skt	STM-1234	34 mm Skt	SMD-1230	30 mm Deep
STM-1214	14 mm Skt	STM-1236	36 mm Skt	S-15A	Speeder
STM-1215	15 mm Skt	SMD-1213	13 mm Deep	S-41A	Flex Handle
STM-1216	16 mm Skt	SMD-1214	14 mm Deep	S-52	Ratchet
STM-1217	17 mm Skt	SMD-1215	15 mm Deep	S-55A	Reht. Adapter
STM-1218	18 mm Skt	SMD-1216	16 mm Deep	S-60D	Stud Remover
STM-1219	19 mm Skt	SMD-1217	17 mm Deep	S-102P	2-1/2" Ext'n
STM-1221	21 mm Skt	SMD-1218	18 mm Deep	S-110P	5-1/2" Ext'n
STM-1222	22 mm Skt	SMD-1219	19 mm Deep	S-115P	10" Ext'n
STM-1224	24 mm Skt	SMD-1221	21 mm Deep	S-140A	Universal Jt

*Selected sizes to fit latest international standards (I.S.O.) specifications.



METRIC SUPERCHEST SETS



11 Drawer
Roller
Cabinet
TC-201C
furnished
with
SET No.
MSC-131D

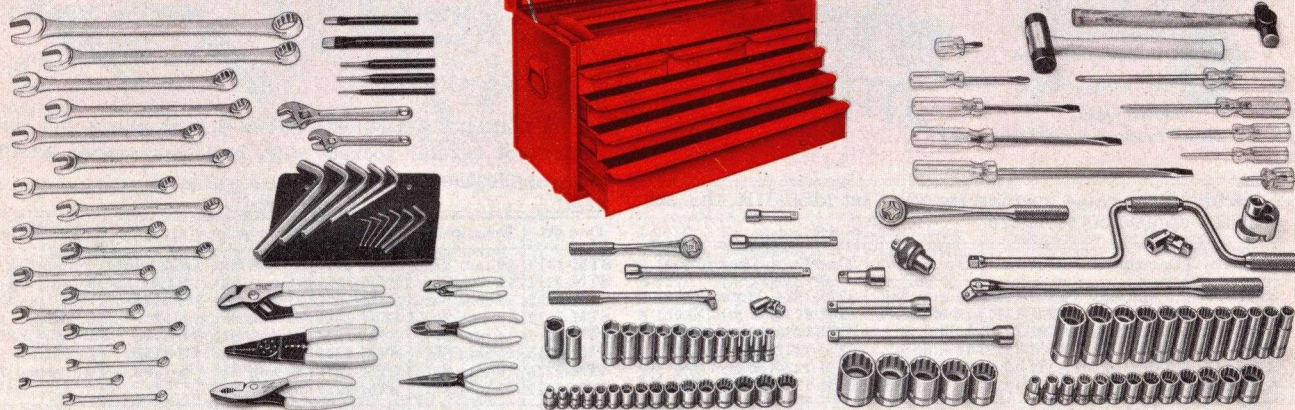


7 Drawer TB-2002
furnished with
SET No. MSC-131A



11 Drawer TB-4001
furnished with
SET No. MSC-131C

6 Drawer TB-2001
furnished with
SET No. MSC-131B



SET No. MSC-131A

131 Tools
In TB-2002 Tool Chest
25-7/8" x 12-1/8" x 14-1/2"
Total Weight, 103 lbs.

SET No. MSC-131B

131 Tools
In TB-2001 Tool Chest
25-7/8" x 12-1/8" x 14-1/2"
Total Weight, 103 lbs.

SET No. MSC-131C

131 Tools
In TB-4001 Tool Chest
25-7/8" x 12-1/8" x 18-1/8"
Total Weight, 136 lbs.

SET No. MSC-131D

131 Tools
In TC-201C Roll. Cab.
26-3/8" x 18" x 40-1/4"
Total Weight, 250 lbs.

SET No. MSC-131T

131 Tools
Only
Total Weight, 47 lbs.

With hex or 12-point socket openings from 7 mm to 36 mm in 3/8" and 1/2" drives, this becomes a remarkably versatile set for metric applications.

The wide range of regular and deep sockets is backed up with most often needed pliers, screwdrivers, hammers plus punches and chisels.

General maintenance mechanics, millwrights, mechanical equipment repairmen, general contractors, automotive mechanics will find this ideal for the growing amount of metric fasteners now found in general use.

One Ea.	Description	One Ea.	Description	One Ea.	Description	One Ea.	Description	One Ea.	Description	One Ea.	Description		
3/8" DRIVE		3/8" DRIVE		1/2" DRIVE		1/2" DRIVE		COMB. WRENCHES		ADJUSTABLE WRS.			
BM-607	7 mm 6 Pt Skt	BMD-616	16 mm 6 Pt Dp	STM-1219	19 mm 12 Pt Skt	S-55A	Rcht. Adapter	XOEM-24	24 & 24 mm	AP-6	6" Adj. Wr.		
BM-608	8 mm 6 Pt Skt	BMD-617	17 mm 6 Pt Dp	STM-1221	21 mm 12 Pt Skt	S-60D	Stud Remover	XOEM-27	27 & 27 mm	AP-8	8" Adj. Wr.		
BM-1209	9 mm 12 Pt Skt	BMD-618	18 mm 6 Pt Dp	STM-1222	22 mm 12 Pt Skt	S-102P	2-1/2" Ext'n	XOEM-30	30 & 30 mm	CHISELS & PUNCHES			
BM-1210	10 mm 12 Pt Skt	BMD-619	19 mm 6 Pt Dp	STM-1224	24 mm 12 Pt Skt	S-110P	5-1/2" Ext'n	PLIERS					
BM-1211	11 mm 12 Pt Skt	BD-620P	5/8" S.P. Skt	STM-1227	27 mm 12 Pt Skt	S-115P	10" Ext'n	COMB. WRENCHES		C-16	1/2" Cold		
BM-1212	12 mm 12 Pt Skt	BD-626P	13/16" S.P. Skt	STM-1230	30 mm 12 Pt Skt	S-140A	Universal Jt			PL-46C	6" Diag. Cut.	C-24	3/4" Cold
BM-1213	13 mm 12 Pt Skt	B-40A	Flex Handle	STM-1232	32 mm 12 Pt Skt	COMB. WRENCHES		PL-76C	6" Chain Nose	P-4	1/8" x 6" Pin		
BM-1214	14 mm 12 Pt Skt	B-52	Ratchet	STM-1234	34 mm 12 Pt Skt			XOEM-7	7 & 7 mm	PL-218C	Crimper	P-6	3/16" x 6" Pin
BM-1215	15 mm 12 Pt Skt	B-108	3" Ext'n	STM-1236	36 mm 12 Pt Skt	XOEM-8	8 & 8 mm	PL-370C	7-1/2" Slip Jt	P-8	1/4" x 6" Pin		
BM-1216	16 mm 12 Pt Skt	B-110	6" Ext'n	SMD-1213	13 mm 12 Pt Dp	XOEM-9	9 & 9 mm	PL-1519C	5" Superjoint	MISC. TOOLS			
BM-1217	17 mm 12 Pt Skt	B-115	10-1/2" Ext'n	SMD-1214	14 mm 12 Pt Dp	XOEM-10	10 & 10 mm	PL-1520C	10" Superjoint				
BM-1218	18 mm 12 Pt Skt	B-140A	Universal Jt	SMD-1215	15 mm 12 Pt Dp	SCREWDRIVERS		COMB. WRENCHES		MISC. TOOLS			
BM-1219	19 mm 12 Pt Skt	1/2" DRIVE		SMD-1216	16 mm 12 Pt Dp							XOEM-11	11 & 11 mm
BM-1221	21 mm 12 Pt Skt			STM-1210	10 mm 12 Pt Skt	SMD-1217	17 mm 12 Pt Dp	XOEM-12	12 & 12 mm	DS-4	4" Sq. Blade	HBP-2-0	3/4 lb. Hammer
BM-1222	22 mm 12 Pt Skt	STM-1211	11 mm 12 Pt Skt	SMD-1218	18 mm 12 Pt Dp	XOEM-13	13 & 13 mm	DS-6	6" Sq. Blade	HSF-155	Hammer Body		
BM-1224	24 mm 12 Pt Skt	STM-1212	12 mm 12 Pt Skt	SMD-1219	19 mm 12 Pt Dp	XOEM-14	14 & 14 mm	DS-8	8" Sq. Blade	HSF-15H	Hard Tip		
BMD-608	8 mm 6 Pt Dp	STM-1213	13 mm 12 Pt Skt	SMD-1221	21 mm 12 Pt Dp	XOEM-15	15 & 15 mm	DS-12	12" Sq. Blade	HSF-15S	Soft Tip		
BMD-609	9 mm 6 Pt Dp	STM-1214	14 mm 12 Pt Skt	SMD-1222	22 mm 12 Pt Dp	XOEM-16	16 & 16 mm	DS-62	1-1/2" Stubby	WS-27R	11 Hex Key Wrs		
BMD-610	10 mm 6 Pt Dp	STM-1215	15 mm 12 Pt Skt	SMD-1224	24 mm 12 Pt Dp	XOEM-17	17 & 17 mm	DP-1	Phillips #1	.....		
BMD-611	11 mm 6 Pt Dp	STM-1216	16 mm 12 Pt Skt	SMD-1227	27 mm 12 Pt Dp	XOEM-18	18 & 18 mm	DP-2	Phillips #2				
BMD-612	12 mm 6 Pt Dp	STM-1217	17 mm 12 Pt Skt	SMD-1230	30 mm 12 Pt Dp	XOEM-19	19 & 19 mm	DP-3	Phillips #3				
BMD-613	13 mm 6 Pt Dp	STM-1218	18 mm 12 Pt Skt	S-15A	Speeder	XOEM-21	21 & 21 mm	DP-4	Phillips #4				
BMD-614	14 mm 6 Pt Dp	STM-1219	19 mm 12 Pt Skt	S-41A	Flex Handle	XOEM-22	22 & 22 mm	DP-62	Phillips #2				
BMD-615	15 mm 6 Pt Dp	STM-1217	17 mm 12 Pt Skt	S-52	Ratchet								
		STM-1218	18 mm 12 Pt Skt										

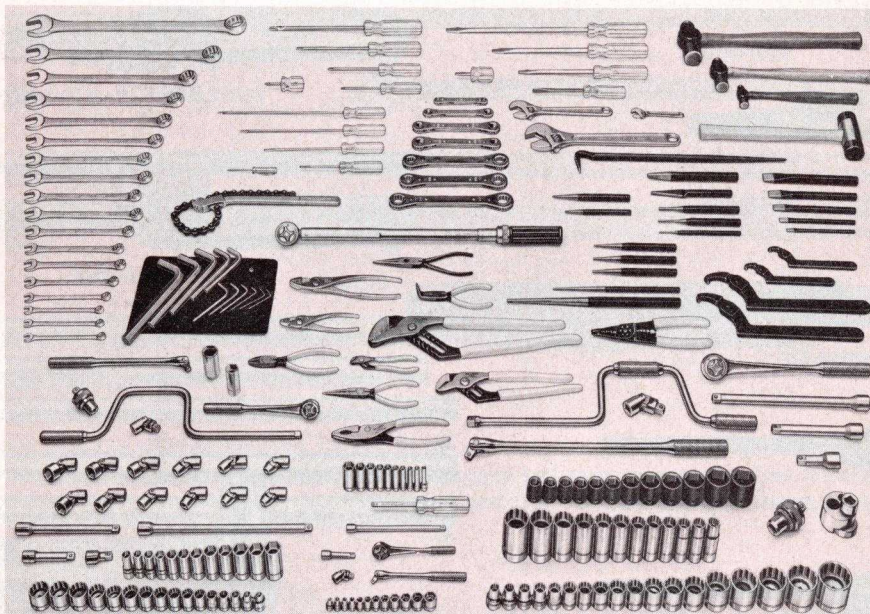
METRIC SERVICE MOBILE WORK SHOPS



SET No. MSC-225A
furnished with
TB-2001, TB-3001, TC-101C



SET No. MSC-225B
furnished with
TB-2002, TB-3001, TC-102C

**MSC-225A**

225 Tools
In TB-2001,
TB-3001 and
TC-101C Rollcab

MSC-225B

225 Tools
In TB-2002,
TB-3001 and
TC-102C Rollcab

MSC-225C

225 Tools
In TB-2001,
TB-3001 and
TC-105C Rollcab

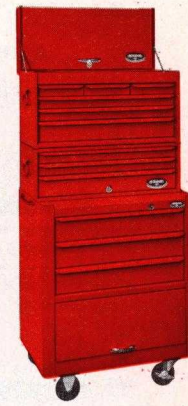
MSC-225D

225 Tools
In TB-2002,
TB-3001 and
TC-105C Rollcab

MSC-225T

225 Tools
Only

Total Wgt., 279 lbs. Total Wgt., 304 lbs. Total Wgt., 304 lbs. Total Wgt., 304 lbs. Total Wgt., 81 lbs.



SET No. MSC-225C
furnished with
TB-2001, TB-3001, TC-105C

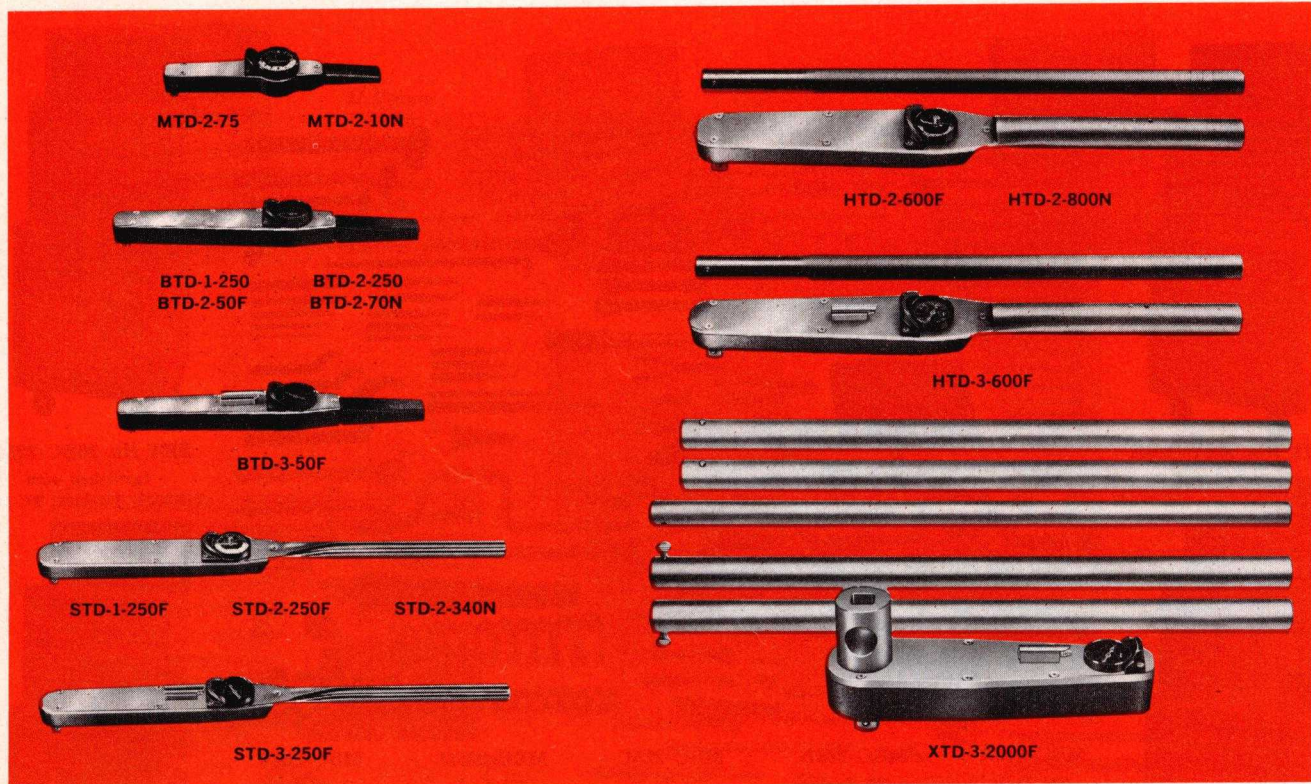


SET No. MSC-225D
furnished with
TB-2002, TB-3001, TC-105C

From delicate service jobs requiring only 4 mm hex opening, to heavy repair or assembly jobs requiring 36 mm openings, this is the set that can do them all. It even includes a micrometer-type torque wrench that will measure 5 to 35 m kg. In this set the service mechanic has everything he needs at the job to do it quickly.

One Ea.	Description	One Ea.	Description	One Ea.	Description	One Ea.	Description	One Ea.	Description	One Ea.	Description
1/4" DRIVE		3/8" DRIVE		3/8" DRIVE		1/2" DRIVE		MISC. WRENCHES		CHISELS & PUNCHES	
MM-604	4 mm 6 Pt Skt	BM-1216	16 mm 12 Pt Skt	BD-620P	5/8" S.P. Skt	S-102P	2-1/2" Ext'n	RBM-0708	7 & 8 mm	C-24	3/4" Cold
MM-605	5 mm 6 Pt Skt	BM-1217	17 mm 12 Pt Skt	BD-626P	13/16" S.P. Skt	S-110P	5-1/2" Ext'n	RBM-0910	9 & 10 mm	C-42	1/4" Cape
MM-605.5	5.5mm 6 Pt Skt	BM-1218	18 mm 12 Pt Skt	1/2" DRIVE		S-115P	10" Ext'n	RBM-1112	11 & 12 mm	C-62	3/8" Diamond
MM-606	6 mm 6 Pt Skt	BM-1219	19 mm 12 Pt Skt	STM-1210	10 mm 12 Pt Skt	S-140A	Universal Jt	RBM-1314	13 & 14 mm	P-4	1/8" x 6" Pin
MM-607	7 mm 6 Pt Skt	BM-1221	21 mm 12 Pt Skt	STM-1211	11 mm 12 Pt Skt	STW-3RCF	Torque Wr	RBM-1517	15 & 17 mm	P-6	3/16" x 6" Pin
MM-608	8 mm 6 Pt Skt	BM-1222	22 mm 12 Pt Skt	STM-1212	12 mm 12 Pt Skt	4M-613	13 mm PwDr	RBM-1618	16 & 18 mm	P-8	1/4" x 6" Pin
MM-609	9 mm 6 Pt Skt	BM-1224	24 mm 12 Pt Skt	STM-1213	13 mm 12 Pt Skt	4M-614	14 mm PwDr	RBM-1921	19 & 21 mm	P-14	1/8" x 6" Solid
MM-610	10 mm 6 Pt Skt	BMD-608	8 mm 6 Pt Dp	STM-1214	14 mm 12 Pt Skt	4M-615	15 mm PwDr	AP-4	4" Adj Wr	P-15	5/32" x 6" Solid
MM-611	11 mm 6 Pt Skt	BMD-609	9 mm 6 Pt Dp	STM-1215	15 mm 12 Pt Skt	4M-616	16 mm PwDr	AP-8	8" Adj Wr	P-16	3/16" x 6" Solid
MM-612	12 mm 6 Pt Skt	BMD-610	10 mm 6 Pt Dp	STM-1216	16 mm 12 Pt Skt	4M-617	17 mm PwDr	AP-12	12" Adj Wr	P-25	5/32" Taper
MM-613	13 mm 6 Pt Skt	BMD-611	11 mm 6 Pt Dp	STM-1217	17 mm 12 Pt Skt	4M-618	18 mm PwDr	CW-4	Chain Wr	P-28	1/4" Taper
MM-614	14 mm 6 Pt Skt	BMD-612	12 mm 6 Pt Dp	STM-1218	18 mm 12 Pt Skt	4M-619	19 mm PwDr	471	3/4-2" Span	P-32	6" Prick
MMD-605	5 mm 6 Pt Dp	BMD-613	13 mm 6 Pt Dp	STM-1219	19 mm 12 Pt Skt	4M-621	21 mm PwDr	474	2-4 3/4" Span	P-40	5" Center
MMD-605.5	5.5mm 6 Pt Dp	BMD-614	14 mm 6 Pt Dp	STM-1221	21 mm 12 Pt Skt	4M-622	22 mm PwDr	O-471	3/4-2" Span	PLIERS	
MMD-606	6 mm 6 Pt Dp	BMD-615	15 mm 6 Pt Dp	STM-1222	22 mm 12 Pt Skt	4M-624	24 mm PwDr	O-474	2-4 3/4" Span	PL-8	8" Slip Jt
MMD-607	7 mm 6 Pt Dp	BMD-616	16 mm 6 Pt Dp	STM-1224	24 mm 12 Pt Skt	4M-627	27 mm PwDr	SCREWDRIVERS		PL-15	5" Thin Nose
MMD-608	8 mm 6 Pt Dp	BMD-617	17 mm 6 Pt Dp	STM-1226	26 mm 12 Pt Skt	4M-630	30 mm PwDr	DS-4	4" Sq. Blade	PL-46C	6" Diag. Cut
MMD-609	9 mm 6 Pt Dp	BMD-618	18 mm 6 Pt Dp	STM-1227	27 mm 12 Pt Skt	COMB. WRENCHES		DS-8	8" Sq. Blade	PL-76C	6" Chain Nose
MMD-610	10 mm 6 Pt Dp	BMD-619	19 mm 6 Pt Dp	STM-1230	30 mm 12 Pt Skt	XOEM-7	7 & 7 mm	DS-12	12" Sq. Blade	PL-77C	7" Chain Nose
MMD-611	11 mm 6 Pt Dp	BMU-608	8 mm 6 Pt Univ	STM-1232	32 mm 12 Pt Skt	XOEM-8	8 & 8 mm	DS-62	1-1/2" Stubby	PL-218C	Curved Ch Nose
MMD-612	12 mm 6 Pt Dp	BMU-609	9 mm 6 Pt Univ	STM-1234	34 mm 12 Pt Skt	XOEM-9	9 & 9 mm	DP-1	Phillips #1	PL-370C	Crimper
MMD-613	13 mm 6 Pt Dp	BMU-610	10 mm 6 Pt Univ	STM-1236	36 mm 12 Pt Skt	XOEM-10	10 & 10 mm	DP-2	Phillips #2	PL-1519C	7-1/2" Slip Jt
M-42A	Flex Handle	BMU-611	11 mm 6 Pt Univ	SMD-1213	13 mm 12 Pt Dp	XOEM-11	11 & 11 mm	DP-3	Phillips #3	PL-1520C	5" Superjoint
M-52	Ratchet	BMU-612	12 mm 6 Pt Univ	SMD-1214	14 mm 12 Pt Dp	XOEM-12	12 & 12 mm	DP-4	Phillips #4	PL-1522C	10" Superjoint
M-102	2" Ext'n	BMU-613	13 mm 6 Pt Univ	SMD-1215	15 mm 12 Pt Dp	XOEM-13	13 & 13 mm	DE-43	3" Electr'n	MISC. TOOLS	
M-106	Spinner Hdle	BMU-614	14 mm 6 Pt Univ	SMD-1216	16 mm 12 Pt Dp	XOEM-14	14 & 14 mm	DE-46	6" Electr'n	HBP-5-0	4 oz. Hammer
M-115	6" Ext'n	BMU-615	15 mm 6 Pt Univ	SMD-1217	17 mm 12 Pt Dp	XOEM-15	15 & 15 mm	DE-48	8" Electr'n	HBP-2-0	3/4 lb. Hammer
M-140A	Universal Jt	BMU-616	16 mm 6 Pt Univ	SMD-1218	18 mm 12 Pt Dp	XOEM-16	16 & 16 mm	DE-50	10" Electr'n	HBP-4	2 lb. Hammer
		BMU-617	17 mm 6 Pt Univ	SMD-1219	19 mm 12 Pt Dp	XOEM-17	17 & 17 mm	DE-52	2" Pocket	HSF-155	Hammer Body
		BMU-618	18 mm 6 Pt Univ	SMD-1221	21 mm 12 Pt Dp	XOEM-18	18 & 18 mm	CHISELS & PUNCHES		HSF-155H	Hard Tip
		BMU-619	19 mm 6 Pt Univ	SMD-1222	22 mm 12 Pt Dp	XOEM-19	19 & 19 mm	C-10	5/16" Cold	HSF-155S	Soft Tip
		B-15	Speeder	SMD-1224	24 mm 12 Pt Dp	XOEM-20	20 & 20 mm	C-12	3/8" Cold	C-715	15 1/2" Roll Bar
		B-40A	Flex Handle	SMD-1226	26 mm 12 Pt Dp	XOEM-21	21 & 21 mm	C-16	1/2" Cold	WS-27R	11 Hex Key Wrs
		B-52	Ratchet	SMD-1227	27 mm 12 Pt Dp	XOEM-22	22 & 22 mm	C-20	5/8" Cold		
		B-55	Rcht Adapter	SMD-1230	30 mm 12 Pt Dp	XOEM-23	23 & 23 mm				
		B-101	1-1/2" Ext'n	S-15A	Speeder	XOEM-24	24 & 24 mm				
		B-108	3" Ext'n	S-41A	Flex Handle	XOEM-27	27 & 27 mm				
		B-110	6" Ext'n	S-52	Ratchet	XOEM-30	30 & 30 mm				
		B-115	10-1/2" Ext'n	S-55A	Rcht. Adapter						
		B-140A	Universal Jt	S-60D	Stud Remover						

U.S./METRIC DIAL TORQUE WRENCHES



Now you can measure U.S. or Metric torque values with Williams combination dial. Follower Needle style is also available with full Newton meter calibration only. Equally accurate in both right and left hand torque, calibration is certified and traceable to the National Bureau of Standards. See page 52 for dial detail.

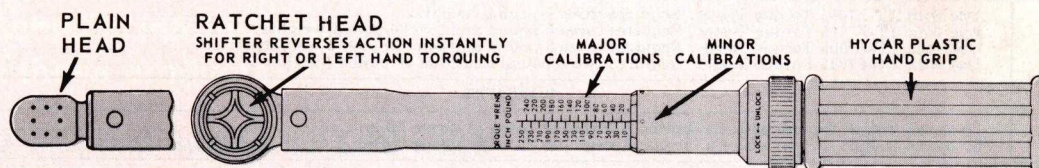
No.	Drive Size	U.S.		METRIC		Overall Length, Inches		Wgt. Each Lbs.
		Range	Increments	Range	Increments	Wrench Only	With Extension	
SINGLE POINTER STYLE — COMBINATION DIAL								
BTD-1-250	3/8"	0-250 in lb	5 in lb	0-280 cm kg	5 cm kg	10	.....	1.75
STD-1-250F	1/2"	0-250 ft lb	5 ft lb	0-35 m kg	1 m kg	22-1/2	.....	3.75
FOLLOWER NEEDLE STYLE — COMBINATION DIAL								
MTD-2-75	1/4"	0-75 in lb	1 in lb	0-90 cm kg	2 cm kg	10	.....	1.75
BTD-2-250	3/8"	0-250 in lb	5 in lb	0-280 cm kg	5 cm kg	10	.....	1.75
BTD-2-50F	3/8"	0-50 ft lb	1 ft lb	0-7 m kg	2 m kg	14-7/8	.....	2.0
STD-2-250F	1/2"	0-250 ft lb	5 ft lb	0-35 m kg	1 m kg	22-1/2	.....	3.75
HTD-2-600F	3/4"	0-600 ft lb	10 ft lb	0-80 m kg	2 m kg	25-1/2	46-1/2	9.5
FOLLOWER NEEDLE STYLE — METRIC (Newton Meter) DIAL								
MTD-2-10N	1/4"	.....	.....	0- 10N m	.2N m	10	.....	1.75
BTD-2-70N	3/8"	.....	.....	0- 70N m	1N m	10	.....	1.75
STD-2-320N	1/2"	.....	.....	0-320N m	5N m	22-1/2	.....	3.75
HTD-2-800N	3/4"	.....	.....	0-800N m	10N m	25-1/2	46-1/2	9.5
ELECTRIC LIGHT SIGNAL STYLE — COMBINATION DIAL								
BTD-3-50F	3/8"	0-50 ft lb	1 ft lb	0-7 m kg	0.2 m kg	14-7/8	.....	2.0
STD-3-250F	1/2"	0-250 ft lb	5 ft lb	0-35 m kg	.1 m kg	22-1/2	.....	3.75
HTD-3-600F	3/4"	0-600 ft lb	10 ft lb	0-80 m kg	.2 m kg	25-1/2	46-1/2	9.5
XTD-3-2000F	1"	0-2000 ft lb	50 ft lb	0-280 m kg	.5 m kg	13-1/2	*120	21.0

*To be used with Torque Multiplier or with T-Handle assembly only. Use center bar and 2 handles for low torque values, and all 4 handles for torque values over 1000 ft lb.

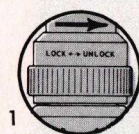
U.S./METRIC TORQUE LIMITING WRENCHES



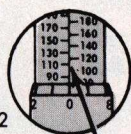
Easy to operate. Merely turn the micrometer style handle to the desired setting and lock in place. The torque limiting device will momentarily release automatically when the predetermined torque has been reached by feel impulse and with audible signal. Convenient dual marking on models indicated facilitate mixed U.S. and Metric applications.



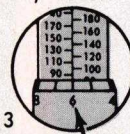
SIMPLE, FAST OPERATING PROCEDURE



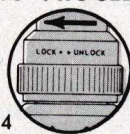
1
UNLOCK by turning lock ring to the right.



2
ROTATE grip until MAJOR TORQUE VALUE shows here.



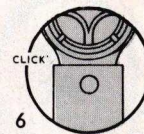
3
THEN ROTATE grip so MINOR TORQUE VALUE reading lines up with "zero" line.



4
LOCK torque setting by turning lock ring to the left.



5
SET ratchet shifter for desired direction.

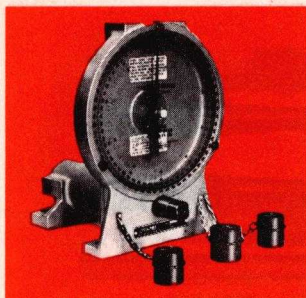


6
An AUDIBLE snap-type signal indicates that selected torque has been reached.

No.	Drive Size	Type Head	Setting	U.S.		METRIC		Lgth. Inches	Wgt. Lbs.
				Range	Increm.	Range	Increm.		
DUAL U.S./METRIC MARKINGS									
MTW-0PC	1/4"	Plain	Adjust.	30- 200 in lb	1 in lb	40.3- 236.2 cm kg	1.2 cm kg	9	.6
MTW-0RC	1/4"	Ratch.	Adjust.	30- 200 in lb	1 in lb	40.3- 236.2 cm kg	1.2 cm kg	9-1/2	.7
BTW-2PC	3/8"	Plain	Adjust.	150-1000 in lb	5 in lb	201.6-1180.8 cm kg	5.8 cm kg	14	2.1
BTW-2PCF	3/8"	Plain	Adjust.	15- 100 ft lb	1/2 ft lb	2.4- 14.2 m kg	.07 m kg	14	2.1
BTW-2RC	3/8"	Ratch.	Adjust.	150-1000 in lb	5 in lb	201.6-1180.8 cm kg	5.8 cm kg	15	2.3
BTW-2RCF	3/8"	Ratch.	Adjust.	15- 100 ft lb	1/2 ft lb	2.4- 14.2 m kg	.07 m kg	15	2.3
STW-3PCF	1/2"	Plain	Adjust.	30- 250 ft lb	1 ft lb	4.8- 35.3 m kg	.14 m kg	20	2.3
STW-3RCF	1/2"	Ratch.	Adjust.	30- 250 ft lb	1 ft lb	4.8- 35.3 m kg	.14 m kg	21	2.8
HTW-4PCF	3/4"	Plain	Adjust.	100- 600 ft lb	2-1/2 ft lb	15.6- 84.7 m kg	.4 m kg	40	9.5
HTW-4RCF	3/4"	Ratch.	Adjust.	100- 600 ft lb	2-1/2 ft lb	15.6- 84.7 m kg	.4 m kg	40	10.
XTW-5PCFA	1"	Plain	Adjust.	300-2000 ft lb	10 ft lb	48-270 m kg	1.4 m kg	†105	57.5
METRIC MARKINGS ONLY									
MTW-0RCM	1/4"	Ratch.	Adjust.	.....	.....	30- 200 cm kg	1 cm kg	9-1/2	.7
BTW-2RCM	3/8"	Ratch.	Adjust.	.....	.....	150-1000 cm kg	5 cm kg	15	2.3
STW-3RCM	1/2"	Ratch.	Adjust.	.....	.....	5- 35 m kg	0.5 m kg	21	2.8

†Overall length fully assembled with both handles. Entire set comes complete in wooden box.

U.S./METRIC TORQUE WRENCH TESTERS



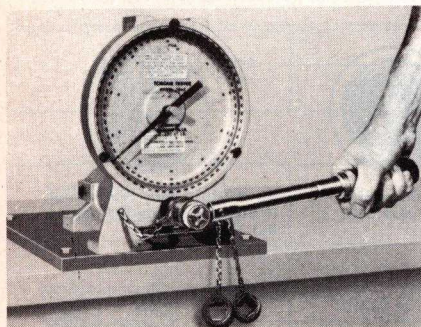
Williams Torque Wrench Testers, designed on the Torsion Bar principle, will quickly test the accuracy of any manual Torque Wrench. All models are similar to illustration at the left. These instruments need not be mounted level nor in a specific plane for accurate performance. However horizontal mounting is desirable to facilitate dead weight calibrating. They can be operated in either a clockwise or counterclockwise direction. Torque applied to the input of the tester actuates a control arm beneath an accurately calibrated scale. After torque has been applied, the control arm which also acts as a stay-set indicator, remains on the maximum torque reading obtained, until it is manually reset to zero. The reading on the scale of the tester is compared with that of the torque wrench.

Each Tester comes with combination U.S. Standard and Metric Kilogram Dial Face as listed in table below. Certified accuracy of all models is $\pm 1\%$, or one scale graduation, whichever is greater. Tests torque wrenches meeting MIL-W-26497B or GGG-W-686 specifications, in sizes compatible with the range of each tester. See Technical Bulletin TB-129 for complete operational details. Loader and Calibrator assemblies are shown below.

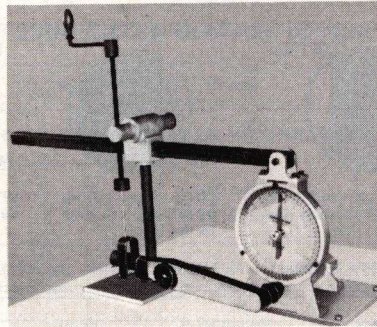
No.	Range		Increments		Drive Size	Adapters Included	Wgt.
	Metric	U.S.	Metric	U.S.			
TT-F7085	0-290 cm kg	0-250 in lb	1 cm kg	1 in lb	3/8" Female	3/8" Male x 1/4" Female	10.5
TT-F7075	0-2000 cm kg	0-1800 in lb	5 cm kg	2 in lb	3/8" Female	3/8" Male x 1/4" Female 3/8" Male x 1/2" Female	10.5
TT-F7065	0-70 m kg	0-500 ft lb	1 m kg	5 ft lb	3/4" Male	3/4" Female x 3/4" Female 3/4" Female x 1/2" Female	12.0
TT-F7045	0-140 m kg	0-1000 ft lb	1 m kg	5 ft lb	1" Male	1" Female x 3/8" Female 1" Female x 1" Female 1" Female x 3/4" Female	15.0

No.	Description	Wgt.
MECHANICAL LOADER		
TT-7047	As illustrated below, center. Overall Length, 48"	10.0
CALIBRATOR ASSEMBLIES (Weights Not Included)		
TT-7085631	Use with TT-F7085 Torque Tester. Requires three 5 pound weights	8.0
TT-7075631	Use with TT-F7075 Torque Tester. Requires three 5 pound and two 20 pound weights	11.0
TT-7065631	Use with TT-F7065 Torque Tester. Requires three 5 pound and four 20 pound weights	19.0
	Use with TT-F7045 Torque Tester. Requires two 5 pound and nine 20 pound weights	
WEIGHTS		
TT-73630-5	5 pound weight for use with Calibrator Assemblies listed in above table	5.0
TT-73630-20	20 pound weight for use with Calibrator Assemblies listed in above table	20.0

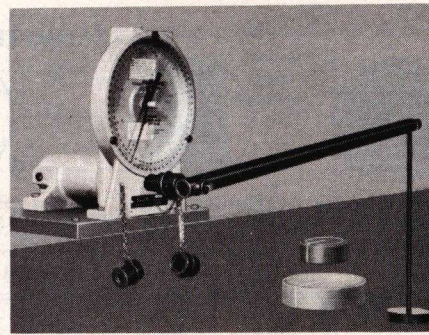
TORQUE TESTER — Checking Accuracy of Wrench



TORQUE TESTER with MECHANICAL LOADER

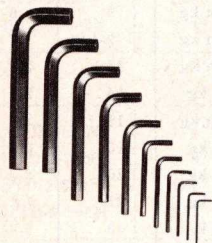


TORQUE TESTER with CALIBRATOR ASSEMBLY



METRIC HEX KEY WRENCH SET

SELECTED STEEL



SET No. WS-27R
11 Hex Key Wrenches
In Plastic Kit
Total Weight, 2.3 lbs.

Excellent range of popular sizes. Made from selected steel.
SOLD IN SET ONLY

Size Millimeter	Short Arm	Long Arm	Size Millimeter	Short Arm	Long Arm
2	23/32	1-15/16	8	1-9/16	4-1/16
2.5	25/32	2-1/32	10	1-9/16	4-7/32
3	7/8	2-3/8	12	1-3/4	5-3/16
4	1-1/16	2-13/16	14	1-7/8	5-3/4
5	1-3/32	3-1/16	17	2	6-5/16
6	1-9/32	3-9/32			

METRIC FEELER GAUGES

TEMPERED SWEDISH STEEL



Blades are 12" long by 1/2" wide, and precision made.

No.	Thickness		Wgt. Per 1/2 Doz.	No.	Thickness		Wgt. Per 1/2 Doz.
	mm	Inches			mm	Inches	
GL-0015	.037	.0015	.021	GL-015	.381	.015	.125
GL-002	.051	.002	.025	GL-016	.406	.016	.125
GL-003	.076	.003	.033	GL-017	.432	.017	.125
GL-004	.102	.004	.044	GL-018	.457	.018	.187
GL-005	.127	.005	.056	GL-020	.508	.020	.187
GL-006	.152	.006	.062	GL-022	.559	.022	.187
GL-007	.178	.007	.062	GL-024	.610	.024	.187
GL-008	.203	.008	.062	GL-025	.635	.025	.187
GL-009	.229	.009	.062	GL-028	.711	.028	.187
GL-010	.254	.010	.062	GL-030	.762	.030	.250
GL-011	.279	.011	.062	GL-032	.813	.032	.250
GL-012	.305	.012	.062	GL-035	.889	.035	.312
GL-013	.330	.013	.125	GL-040	1.016	.040	.375
GL-014	.356	.014	.125				

5

BLACK WRENCHES

AND

RATCHETS

For technical information about these products

Ask for Technical Bulletin TB-110B which covers design features and application of Williams Industrial Finish Ratchets and Wrenches.



Never hammer on a wrench handle, unless it is especially designed for the purpose. Use a striking face wrench to loosen frozen nuts, and be sure to wear safety glasses.

5
BLACK
WRENCHES
AND
RATCHETS



SUPERJUSTABLE® WRENCHES

SELECTED ALLOY STEEL
INDUSTRIAL FINISH



Drop-forged and heat-treated, with satin finish handles. Individually packaged.

Example of Order Nomenclature: "ABL-8 ADJUSTABLE"

See Pages 6 and 7 for complete description and parts assortments. Parts set consists of one each Knurl, Pin, Spring or Retainer Ring

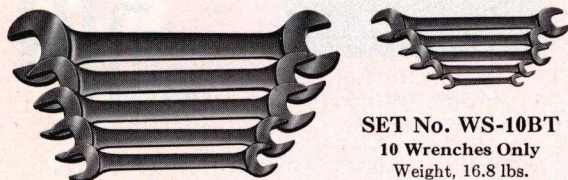
No.	Size Inch	Capacity	Thickness Head		Wgt. Each Lbs.	Replacement Parts	
			Jaw Tip	Extreme		Jaw No.	Set No.
REGULAR							
AB-4	4	1/2	9/64	5/16	.11	AB-4-1	AP-4-2
AB-6	6	3/4	7/32	3/8	.27	AB-6-1	AP-6-2
AB-8	8	1	17/64	1/2	.52	AB-8-1	AP-8-2
AB-10A	10	1-1/8	23/64	19/32	.90	AB-10-1	*AP-10A-2
AB-12	12	1-5/16	15/32	23/32	1.6	AB-12-1	AP-12-2
AB-15	15	1-3/4	19/32	31/32	3.6	AB-15-1	AP-15-2
AB-18	18	2-1/16	23/32	1-3/16	6.	AB-18-1	AP-18-2
LOCKAJUST							
ABL-6	6	3/4	7/32	3/8	.27	AB-6-1	APL-6-3
ABL-8	8	1	17/64	1/2	.52	AB-8-1	APL-8-3
ABL-10	10	1-1/8	23/64	19/32	.90	AB-10-1	APL-10-3
ABL-12	12	1-5/16	15/32	23/32	1.6	AB-12-1	APL-12-3
ABL-15	15	1-3/4	19/32	31/32	3.6	AB-15-1	APL-15-3

*Parts set consists of one each Knurl, Worm Plunger, Pressure Spring, and Plunger.

WILLIAMS

OPEN END WRENCH SET

INDUSTRIAL FINISH
DOUBLE HEAD—15° ANGLE



SET No. WS-10BT
10 Wrenches Only
Weight, 16.8 lbs.

Here's a set of industrial finish wrenches which provides wide coverage from 3/8" opening thru 2" opening.

No.	Nominal Openings	No.	Nominal Openings
BW-723	3/8"x1/16"	BW-34A	1 1/16"x1-1/16"
BW-725B	1/2"x3/16"	BW-737	1-1/8"x1-1/4"
BW-729	5/8"x3/4"	BW-39A	1-5/16"x1-1/2"
BW-29C	1 1/16"x1 1/16"	BW-41	1 7/16"x1-5/8"
BW-733	7/8"x1"	BW-45	1-13/16"x2"

See Page 129 for ANSI Square and Hexagon Bolts and Nuts, as related to nominal wrench openings.

OPEN END (ENGINEERS') WRENCHES

INDUSTRIAL FINISH

SINGLE HEAD—15° ANGLE



Smooth finish, No. BW-11 and larger have tapered handle.

Example of Order Nomenclature: "BW-709 WRENCH"

FEDERAL SPEC: GGG-W-636D-5, TYPE V

No.	Nominal Opening	Head		Overall Length	Weight Ea., Lbs.
		Width	Thickness		
BW-000 S	3/16	25/32	5/32	2-1/2	.03
BW-00S	1/4	15/16	3/16	2-7/8	.05
BW-00	5/16	25/32	3/16	3-5/8	.06
BW-700	3/8	15/16	7/32	4-1/8	.09
BW-701	7/16	1-5/32	1/4	4-3/4	.13
BW-1	1/2	1-5/32	1/4	4-3/4	.13
BW-702	9/16	1-11/32	9/32	5-5/8	.20
BW-2	19/32	1-11/32	9/32	5-5/8	.20
BW-703	5/8	1-17/32	5/16	6-1/2	.33
BW-3	11/16	1-17/32	5/16	6-1/2	.33
BW-704	3/4	1-13/16	11/32	7-3/8	.44
BW-4	25/32	1-13/16	11/32	7-3/8	.42
BW-705	13/16	2	13/32	8-3/8	.64
BW-5	7/8	2	13/32	8-3/8	.61
BW-6	15/16	2-1/4	15/32	9-1/2	.91
BW-706	1	2-1/4	15/32	9-1/2	.89
BW-7	1-1/16	2-9/16	17/32	10-3/4	1.3
BW-707	1-1/8	2-9/16	17/32	10-3/4	1.4
BW-8	1-1/4	2-15/16	5/8	12-1/4	2.1
BW-8A	1-5/16	2-15/16	5/8	12-1/4	2.1
BW-708A	1-3/8	2-15/16	5/8	12-1/4	2.
BW-9	1-7/16	3-3/8	11/16	13-7/8	2.7
BW-709	1-1/2	3-3/8	11/16	13-7/8	2.7
BW-10	1-5/8	3-21/32	3/4	15-1/2	3.5
BW-10A	1-11/16	3-21/32	3/4	15-1/2	3.5
BW-11	1-13/16	4-1/16	27/32	17-1/8	4.6
BW-11A	1-7/8	4-1/16	27/32	17-1/8	4.5
BW-12	2	4-1/2	29/32	18-7/8	5.8
BW-12A	2-1/16	4-1/2	29/32	18-7/8	5.8
BW-13	2-3/16	4-15/16	31/32	20-3/4	7.2
BW-13A	2-1/4	4-15/16	31/32	20-3/4	7.2
BW-14	2-3/8	5-5/16	1-1/32	22-3/4	10.
BW-14A	2-7/16	5-5/16	1-1/32	22-3/4	9.6
BW-15	2-9/16	5-15/16	1-1/8	24	11.1
BW-15A	2-5/8	5-15/16	1-1/8	24	11.2
BW-16	2-3/4	6-1/2	1-9/32	26-1/2	13.6
BW-16B	2-13/16	6-1/2	1-9/32	26-1/2	13.9
BW-16A	2-15/16	6-1/2	1-9/32	26-1/2	13.7
BW-17A	3	7-1/4	1-3/8	30	18.9
BW-17	3-1/8	7-1/4	1-3/8	30	18.9
BW-18A	3-3/8	8-1/8	1-17/32	34	28.1
BW-18	3-1/2	8-1/8	1-17/32	34	26.5
BW-19B	3-3/4	8-3/4	1-5/8	38	33.1
BW-19	3-7/8	8-3/4	1-5/8	38	33.3
BW-19C	4-1/8	8-3/4	1-5/8	38	31.5
BW-19A	4-1/4	8-3/4	1-5/8	38	32.3
BW-20B	4-1/2	10-1/4	1-7/8	42	50.5
BW-20	4-5/8	10-1/4	1-7/8	42	50.5
BW-20A	5	10-1/4	1-7/8	42	50.4
BW-21A	5-3/8	12-3/8	2-1/2	47	90.5
BW-21B	5-3/4	12-3/8	2-1/2	47	90.5
BW-21C	6-1/8	12-3/8	2-1/2	47	85.
BW-22A	6-7/8	15-1/4	3	52	156.
BW-22B	7-5/8	15-1/4	3	52	149.

WILLIAMS

OPEN END WRENCH SET

INDUSTRIAL FINISH
DOUBLE HEAD—15° ANGLE



SET No. WS-25BR
6 Wrenches in K-10 Roll Kit

SET No. WS-25BT
6 Wrenches Only
Weight, 3.3 lbs.

This set of industrial finish wrenches fits all new regular, heavy and finished series nuts and bolts and hex head cap screws 1/4" thru 3/8" diameters.

No.	Nominal Openings	No.	Nominal Openings
BW-723	3/8"x1/16"	BW-29C	1 1/16"x1 1/16"
BW-725B	1/2"x3/16"	BW-733	7/8"x1"
BW-729	5/8"x3/4"	BW-34A	1 1/16"x1 1/16"



OPEN END (ENGINEERS') WRENCHES

INDUSTRIAL FINISH

DOUBLE HEAD—15° ANGLE



Drop-forged and heat-treated. Smooth finish.

Example of Order Nomenclature: "BW-725A WRENCH"

No.	Nominal Openings	Small Head		Large Head		Overall Length	Weight Each, Lbs.
		Width	Thick.	Width	Thick.		
BW-721	5/16 & 3/8	39/64	3/16	23/32	3/16	4-1/4	.05
BW-21	5/16 & 13/32	39/64	13/64	25/32	13/64	4-1/2	.06
BW-722	5/16 & 7/16	47/64	13/64	53/64	13/64	4-11/16	.07
BW-723	3/8 & 7/16	47/64	13/64	53/64	13/64	4-11/16	.07
BW-723A	3/8 & 1/2	25/32	7/32	15/16	7/32	4-7/8	.08
BW-23	13/32 & 1/2	25/32	7/32	15/16	7/32	4-7/8	.08
BW-725	7/16 & 1/2	53/64	7/32	15/16	7/32	5-1/8	.10
BW-725A	7/16 & 9/16	53/64	15/64	1-1/16	15/64	5-5/8	.12
BW-725B	1/2 & 9/16	15/16	1/4	1-1/8	1/4	6-1/4	.15
BW-25	1/2 & 19/32	15/16	1/4	1-1/8	1/4	6-1/4	.15
BW-726	1/2 & 5/8	1-1/16	17/64	1-11/64	17/64	6-7/8	.20
BW-26	1/2 & 11/16	1-1/16	9/32	1-19/64	9/32	7-1/8	.23
BW-727	9/16 & 5/8	1-1/16	17/64	1-11/64	17/64	6-7/8	.20
BW-27C	9/16 & 11/16	1-1/16	9/32	1-19/64	9/32	7-1/8	.23
BW-27	19/32 & 11/16	1-11/64	9/32	1-19/64	9/32	7-1/2	.26
BW-27B	5/8 & 11/16	1-11/64	9/32	1-19/64	9/32	7-1/2	.26
BW-728	9/16 & 3/4	1-11/64	19/64	1-15/32	19/64	8-1/4	.32
BW-729	5/8 & 3/4	1-11/64	19/64	1-15/32	19/64	8-1/4	.32
BW-29B	11/16 & 3/4	1-19/64	5/16	1-17/32	5/16	9	.38
BW-29	11/16 & 25/32	1-19/64	5/16	1-17/32	5/16	9	.38
BW-29C	11/16 & 13/16	1-19/64	5/16	1-17/32	5/16	9	.37
BW-730	5/8 & 13/16	1-19/64	5/16	1-17/32	5/16	9	.36
BW-30	11/16 & 7/8	1-19/64	21/64	1-41/64	21/64	9-3/8	.45
BW-731	3/4 & 13/16	1-17/32	11/32	1-41/64	11/32	9-3/4	.54
BW-731A	3/4 & 7/8	1-17/32	11/32	1-41/64	11/32	9-3/4	.54
BW-31B	25/32 & 13/16	1-17/32	11/32	1-41/64	11/32	9-3/4	.54
BW-31	25/32 & 7/8	1-17/32	11/32	1-41/64	11/32	9-3/4	.53
BW-731B	13/16 & 7/8	1-17/32	11/32	1-41/64	11/32	9-3/4	.53
BW-32B	13/16 & 15/16	1-41/64	3/8	1-3/4	3/8	10-1/2	.71
BW-33A	7/8 & 15/16	1-41/64	3/8	1-3/4	3/8	10-1/2	.69
BW-733	7/8 & 1	1-3/4	13/32	2	13/32	11-3/8	.92
BW-33C	15/16 & 1	1-3/4	13/32	2	13/32	11-3/8	.91
BW-34	7/8 & 1-1/16	1-3/4	13/32	2	13/32	11-3/8	.90
BW-34A	15/16 & 1-1/16	1-3/4	13/32	2	13/32	11-3/8	.90
BW-35	31/32 & 1-1/16	1-3/4	13/32	2	13/32	11-3/8	.92
BW-735	1 & 1-1/8	2	7/16	2-7/64	7/16	12-1/4	1.1
BW-36B	1-1/16 & 1-1/8	2	7/16	2-7/64	7/16	12-1/4	1.2
BW-37	1-1/16 & 1-1/4	2-7/64	15/32	2-29/64	15/32	13-1/4	1.4
BW-737	1-1/8 & 1-1/4	2-7/64	15/32	2-29/64	15/32	13-1/4	1.4
BW-37A	1-1/8 & 1-5/16	2-7/64	15/32	2-29/64	15/32	13-1/4	1.4
BW-39B	1-1/4 & 1-5/16	2-11/32	1/2	2-11/16	1/2	14-3/8	1.9
BW-39	1-1/4 & 1-7/16	2-11/32	1/2	2-11/16	1/2	14-3/8	1.8
BW-39A	1-5/16 & 1-1/2	2-37/64	17/32	2-13/16	17/32	15-1/2	2.3
BW-39C	1-3/8 & 1-7/16	2-37/64	17/32	2-13/16	17/32	15-1/2	2.3
BW-40	1-1/4 & 1-5/8	2-11/32	35/64	3-3/64	35/64	16-1/8	2.5
BW-41	1-7/16 & 1-5/8	2-13/16	9/16	3-3/64	9/16	16-5/8	2.7
BW-41B	1-1/2 & 1-5/8	2-13/16	9/16	3-3/64	9/16	16-5/8	2.7
BW-42	1-7/16 & 1-13/16	3-5/8	7/8	4-1/8	7/8	17	5.5
BW-42A	1-1/2 & 1-11/16	3-5/8	7/8	4-1/8	7/8	17	5.8
BW-43	1-5/8 & 1-13/16	3-5/8	7/8	4-1/8	7/8	17	5.8
BW-44	1-5/8 & 2	4-1/8	15/16	4-5/8	15/16	19	7.8
BW-44A	1-11/16 & 1-7/8	4-1/8	15/16	4-5/8	15/16	19	7.3
BW-45	1-13/16 & 2	4-1/8	15/16	4-5/8	15/16	19	7.1
BW-45A	1-7/8 & 2-1/16	4-1/8	15/16	4-5/8	15/16	19	6.7
BW-47	2 & 2-3/16	4-9/16	1	5-1/8	1	21	9.3
BW-47B	2-1/16 & 2-1/4	4-9/16	1	5-1/8	1	21	9.3
BW-48	2 & 2-3/8	4-7/8	1-1/16	5-1/2	1-1/16	23	13.
BW-49	2-3/16 & 2-3/8	4-7/8	1-1/16	5-1/2	1-1/16	23	11.9
BW-49A	2-1/4 & 2-7/16	4-7/8	1-1/16	5-1/2	1-1/16	23	12.2
BW-51	2-3/8 & 2-9/16	5-11/16	1-1/16	5-15/16	1-1/8	25	13.3
BW-51A	2-7/16 & 2-5/8	5-11/16	1-1/16	5-15/16	1-1/8	25	13.3
BW-53	2-9/16 & 2-3/4	5-15/16	1-1/8	6-3/8	1-7/32	27	16.7
BW-53A	2-5/8 & 2-13/16	5-15/16	1-1/8	6-3/8	1-7/32	27	16.5
BW-54C	2-3/4 & 2-15/16	5-15/16	1-1/8	7-1/4	1-3/8	30	23.8
BW-55A	2-13/16 & 3	6-3/8	1-7/32	7-1/4	1-3/8	32	25.
BW-55B	2-15/16 & 3-1/8	6-3/8	1-7/32	7-1/4	1-3/8	32	25.
BW-57B	3 & 3-3/8	7-1/8	1-3/8	8	1-17/32	36	36.
BW-57	3-1/8 & 3-1/2	7-1/8	1-3/8	8	1-17/32	36	37.
BW-58A	3-3/8 & 3-3/4	8	1-19/32	8-3/4	1-5/8	38	48.5
BW-58	3-1/2 & 3-7/8	8	1-19/32	8-3/4	1-5/8	38	46.
BW-60A	3-3/4 & 4-1/8	8-3/4	1-5/8	8-3/4	1-5/8	40	48.
BW-60	3-7/8 & 4-1/4	8-3/4	1-5/8	8-3/4	1-5/8	40	48.
BW-62A	4-1/8 & 4-1/2	8-3/4	1-5/8	10-1/4	1-7/8	43	67.
BW-62	4-1/4 & 4-5/8	8-3/4	1-5/8	10-1/4	1-7/8	43	67.
BW-63A	4-5/8 & 5	10-1/4	1-7/8	10-1/4	1-7/8	47	76.
BW-64A	5 & 5-3/8	10-1/4	1-7/8	12-3/8	2-1/2	47	118.

See Page 129 for ANSI Square and Hexagon Bolts and Nuts, as related to nominal wrench openings.

CHECK NUT (THIN) WRENCHES

INDUSTRIAL FINISH

SINGLE HEAD—15° ANGLE



For Check, Jam, or Lock Nuts, etc.

Drop-forged and heat-treated. Smooth finish. This class of wrench is guaranteed amply strong for its intended purpose, but is not designed for severe service.

Example of Order Nomenclature: "606B WRENCH"

No.	Nominal Opening	Head		Overall Length	Weight Ea., Lbs.
		Width	Thickness		
601A	7/16	1-1/8	5/32	4	.08
601	1/2	1-1/8	5/32	4	.08
602A	9/16	1-11/32	11/64	4-1/2	.12
603A	5/8	1-9/16	3/16	5-1/16	.16
603	11/16	1-9/16	3/16	5-1/16	.16
604A	3/4	1-27/32	7/32	5-15/16	.23
604	25/32	1-27/32	7/32	5-15/16	.23
605A	13/16	2-1/16	1/4	6-11/16	.33
605	7/8	2-1/16	1/4	6-11/16	.33
606	15/16	2-1/4	9/32	7-1/2	.48
606B	1	2-1/4	9/32	7-1/2	.48
607	1-1/16	2-1/2	5/16	8-1/2	.66
607A	1-1/8	2-1/2	5/16	8-1/2	.66
608	1-1/4	2-15/16	3/8	10	1.1
608A	1-5/16	2-15/16	3/8	10	1.1
609	1-7/16	3-1/4	7/16	11-5/8	1.6
609A	1-1/2	3-1/4	7/16	11-5/8	1.6
610	1-5/8	3-3/4	1/2	13-1/4	2.5
610A	1-11/16	3-3/4	1/2	13-1/4	2.5

WILLIAMS

CHECK NUT (THIN) WRENCHES

INDUSTRIAL FINISH

DOUBLE HEAD—15° ANGLE



For Check, Jam, or Lock Nuts, etc.

Drop-forged and heat-treated. Smooth finish. This class of wrench is guaranteed amply strong for its intended purpose, but is not designed for severe service.

Example of Order Nomenclature: "630E WRENCH"

No.	Nominal Openings	Small Head		Large Head		Overall Lgth.	Wgt. Each, Lbs.
		Width	Thick.	Width	Thick.		
623D	7/16 & 1/2	1	5/32	1-1/8	5/32	4-5/8	.08
624A	7/16 & 9/16	1-3/32	5/32	1-11/32	5/32	4-3/4	.11
624B	1/2 & 9/16	1-3/32	5/32	1-11/32	5/32	4-3/4	.11
626S	9/16 & 5/8	1-5/16	3/16	1-1/2	3/16	6	.17
627	19/32 & 11/16	1-5/16	3/16	1-1/2	3/16	6	.19
629D	5/8 & 3/4	1-1/2	3/16	1-23/32	3/16	6-3/4	.23
630E	3/4 & 7/8	1-3/4	7/32	1-7/8	7/32	7-1/2	.33
631	25/32 & 7/8	1-3/4	7/32	1-7/8	7/32	7-1/2	.34
631A	13/16 & 7/8	1-3/4	7/32	1-7/8	7/32	7-1/2	.34
632C	7/8 & 15/16	2-5/32	1/4	2-5/16	1/4	8-7/8	.59
634A	7/8 & 1	2-5/32	1/4	2-5/16	1/4	8-7/8	.59
634	7/8 & 1-1/16	2-5/32	1/4	2-5/16	1/4	8-7/8	.54
632X	15/16 & 1	2-5/32	1/4	2-5/16	1/4	8-7/8	.57
634B	15/16 & 1-1/16	2-5/32	1/4	2-5/16	1/4	8-7/8	.59
635D	1 & 1-1/8	2-7/16	9/32	2-11/16	9/32	10-1/2	.95
637	1-1/16 & 1-1/4	2-7/16	9/32	2-11/16	9/32	10-1/2	.89
637A	1-1/8 & 1-5/16	2-7/16	9/32	2-11/16	9/32	10-1/2	.89
639	1-1/4 & 1-7/16	2-11/16	3/8	3-15/32	3/8	12-1/2	1.7
640	1-1/4 & 1-5/8	2-11/16	3/8	3-15/32	3/8	12-1/2	1.8
640A	1-5/16 & 1-1/2	2-11/16	3/8	3-15/32	3/8	12-1/2	1.6

ADJUSTABLE CONSTRUCTION WRENCH

INDUSTRIAL FINISH



New design construction wrench with the Williams D-Hole design adjustable head. Long handle is round for most of its length, with tapered end. Drop-forged and heat-treated. Smooth finish.

No.	Capacity Inches	Overall Length	Thickness Head		Wgt. Each Lbs.
			Jaw Tip	Extreme	
ABCN-12	1-1/2	15 inches	15/32	23/32	2.3

REPLACEMENT PARTS

Jaw No.	*Set No.
AB-12-1	AP-12-2

*Parts set consists of one each Knurl, Pin and Spring.

CONSTRUCTION RATCHET

INDUSTRIAL FINISH
1/2 INCH SQ. DRIVE



The BS-71C Construction Ratchet has a long, round handle with tapered end, 11 inches long for aligning bolt holes of various diameters. Can be used with Supersockets listed on page 27 or Power Drive Sockets listed on pg. 88.

No.	Description	Wgt. Ea., Lbs.
BS-71C	Reversible Construction Ratchet—15" long.	2.0

WILLIAMS SET SCREW WRENCHES

INDUSTRIAL FINISH
SINGLE HEAD—22 1/2° ANGLE
For Set Screws, Square Cap Screws and Nuts



Drop-forged, heat-treated. Smooth finish.

Example of Order Nomenclature: "504 WRENCH"

FEDERAL SPEC:
GGG-W-636D-5, TYPE VIII, CLASS 1, OPEN END, SINGLE HEAD 22 1/2°

No.	Nominal Opening	Head		Overall Length	Weight Ea., Lbs.
		Width	Thickness		
500	3/16	21/32	7/32	3	.04
501	1/4	7/8	9/32	3-1/2	.09
502	5/16	1- 1/16	11/32	4-1/4	.16
503	3/8	1- 1/4	3/8	5	.25
504	7/16	1- 7/16	13/32	5-3/4	.36
505	1/2	1- 5/8	15/32	6-5/8	.50
506	9/16	1-13/16	17/32	7-1/2	.75
507	5/8	2	19/32	8-1/2	.89
508	3/4	2- 1/4	21/32	9-1/2	1.3
509	7/8	2- 1/2	23/32	10-1/2	1.5
510	1	2- 3/4	25/32	11-1/2	2.1

CONSTRUCTION WRENCHES

INDUSTRIAL FINISH
15° ANGLE



Deep opening provides substantial bearing on hex and square nuts. The long handle is round for the greater part of its length, with tapered end. Drop-forged and heat-treated. Smooth finish.

Example of Order Nomenclature: "206B WRENCH"

No.	Nominal Opening	Head		Overall Length	Weight Ea., Lbs.
		Width	Thickness		
201A	7/16	1- 1/4	11/32	9-1/2	.27
201	1/2	1- 1/4	11/32	9-1/2	.27
201B	9/16	1- 1/4	11/32	9-1/2	.27
202	19/32	1- 1/4	11/32	9-1/2	.27
203A	5/8	1-11/16	7/16	12	.53
203	11/16	1-11/16	7/16	12	.53
204A	3/4	1-11/16	7/16	12	.50
204	25/32	1-11/16	7/16	12	.50
205A	13/16	2- 3/32	17/32	14-1/2	1.
205	7/8	2- 3/32	17/32	14-1/2	1.
206	15/16	2- 3/32	17/32	14-1/2	1.
206B	1	2- 3/32	17/32	14-1/2	1.
207	1- 1/16	2- 1/2	5/8	17	1.7
207A	1- 1/8	2- 1/2	5/8	17	1.7
208	1- 1/4	2- 7/8	11/16	19	2.6
208A	1- 5/16	2- 7/8	11/16	19	2.6
209	1- 7/16	3- 5/16	3/4	21	3.7
209A	1- 1/2	3- 5/16	3/4	21	3.7
210	1- 5/8	3- 5/8	27/32	23	5.3
210A	1-11/16	3- 5/8	27/32	23	5.2
211	1-13/16	4- 1/4	15/16	25	7.3
211A	1- 7/8	4- 1/4	15/16	25	7.2
212	2	4- 1/4	15/16	25	7.3

WILLIAMS SET SCREW WRENCHES

INDUSTRIAL FINISH
DOUBLE HEAD—22 1/2° ANGLE
For Set Screws, Square Cap Screws and Nuts



Drop-forged, heat-treated. Smooth finish.

Example of Order Nomenclature: "531 WRENCH"

FEDERAL SPEC:
GGG-W-636D-5, TYPE VII, SET SCREW WR., DBL. HEAD, OPEN END, 22 1/2°

No.	Nominal Openings	Small Head		Large Head		Overall Length	Wgt. Ea., Lbs.
		Width	Thick.	Width	Thick.		
523	3/16 & 1/4	21/32	1/4	7/8	1/4	3- 1/2	.06
524	3/16 & 5/16	7/8	5/16	1- 1/16	5/16	4- 1/4	.13
525	1/4 & 5/16	7/8	5/16	1- 1/16	5/16	4- 1/4	.14
526	1/4 & 3/8	1- 1/16	3/8	1- 1/4	3/8	5	.20
527	5/16 & 3/8	1- 1/16	3/8	1- 1/4	3/8	5	.23
529	3/8 & 7/16	1- 1/4	13/32	1- 7/16	13/32	5- 3/4	.33
530	3/8 & 1/2	1- 7/16	15/32	1- 5/8	15/32	6- 5/8	.52
531	7/16 & 1/2	1- 7/16	15/32	1- 5/8	15/32	6- 5/8	.50
533	1/2 & 9/16	1- 5/8	17/32	1-13/16	17/32	7- 1/2	.71
534	1/2 & 5/8	1-13/16	19/32	2	19/32	8- 1/2	1.
535	9/16 & 5/8	1-13/16	19/32	2	19/32	8- 1/2	.95
537	5/8 & 3/4	2	21/32	2- 1/4	21/32	9- 3/4	1.5
539	3/4 & 7/8	2- 1/4	23/32	2- 1/2	23/32	11	2.9

See Page 129 for ANSI Square and Hexagon Bolts and Nuts, as related to nominal wrench openings.



BOX/OPEN END WRENCHES

INDUSTRIAL FINISH
LONG COMBINATION — 15° ANGLE



Drop-forged from Selected Steel and heat-treated. Smooth finish. Box end, with 12-point opening, is offset from plane of handle, same size opening in both heads.

Example of Order Nomenclature: "BXOE-28 WRENCH"

No.	Nominal Openings	Open End		Box End		Overall Length	Wgt. Each, Lbs.
		Width	Thick.	Diam.	Thick.		
BXOE-12	3/8 & 3/8	51/64	13/64	37/64	1/4	6	.08
BXOE-14	7/16 & 7/16	29/32	7/32	21/32	5/16	6-5/8	.13
BXOE-16	1/2 & 1/2	1-1/32	1/4	47/64	21/64	7-3/16	.16
BXOE-18	9/16 & 9/16	1-5/32	9/32	53/64	11/32	7-15/16	.21
BXOE-20	5/8 & 5/8	1-9/32	19/64	59/64	3/8	8-3/4	.29
BXOE-22	11/16 & 11/16	1-13/32	5/16	1-1/64	13/32	9-5/8	.35
BXOE-24	3/4 & 3/4	1-17/32	11/32	1-3/32	7/16	10-5/8	.46
BXOE-26	13/16 & 13/16	1-5/8	23/64	1-11/64	15/32	11-9/16	.56
BXOE-28	7/8 & 7/8	1-3/4	3/8	1-1/4	1/2	12-11/16	.69
BXOE-30	15/16 & 15/16	1-55/64	25/64	1-21/64	9/16	13-7/8	.85
BXOE-32	1 & 1	1-31/32	13/32	1-27/64	5/8	15-1/8	1.
BXOE-34	1-1/16 & 1-1/16	2-3/32	27/64	1-1/2	43/64	16-1/4	1.3
BXOE-36	1-1/8 & 1-1/8	2-7/32	7/16	1-9/16	21/32	17-7/16	1.5
BXOE-40	1-1/4 & 1-1/4	2-15/32	15/32	1-25/32	3/4	18-11/16	1.9

WILLIAMS HEAVY "S" or CAR WRENCHES

INDUSTRIAL FINISH
DOUBLE HEAD—22½° ANGLE



Drop-forged and heat-treated. Smooth finish.

Example of Order Nomenclature: "370B WRENCH"

No.	Nominal Openings	Small Head		Large Head		Overall Lgth.	Wgt. Each, Lbs.
		Width	Thick.	Width	Thick.		
367A	5/8 & 13/16	1-15/16	7/16	2-11/32	7/16	12	1.4
367	11/16 & 7/8	1-15/16	7/16	2-11/32	7/16	12	1.4
370C	13/16 & 7/8	2-15/32	1/2	2-25/32	1/2	19	2.7
370A	13/16 & 1	2-15/32	1/2	2-25/32	1/2	19	2.6
370	7/8 & 1-1/16	2-15/32	1/2	2-25/32	1/2	19	2.6
370B	1 & 1-1/8	2-15/32	1/2	2-25/32	1/2	19	2.5
372A	1-1/16 & 1-1/4	2-25/32	1/2	3-9/64	1/2	20	3.3
373	1-1/8 & 1-5/16	2-25/32	1/2	3-9/64	1/2	20	3.1
376A	1-1/4 & 1-7/16	3-9/64	9/16	3-9/16	9/16	21	4.2
376	1-5/16 & 1-1/2	3-9/64	9/16	3-9/16	9/16	21	4
378A	1-7/16 & 1-5/8	3-9/16	9/16	3-31/32	9/16	22	4.9
379	1-1/2 & 1-11/16	3-9/16	9/16	3-31/32	9/16	22	4.7
382A	1-5/8 & 1-13/16	3-31/32	5/8	4-1/4	5/8	23	6.3
382	1-11/16 & 1-7/8	3-31/32	5/8	4-1/4	5/8	23	6.1
383B	1-7/8 & 2-1/4	4-3/16	5/8	4-19/32	5/8	24	6.5
385	1-13/16 & 2	4-3/16	5/8	4-19/32	5/8	24	6.7

See Page 129 for ANSI Square and Hexagon Bolts and Nuts, as related to nominal wrench openings.

12-POINT BOX WRENCHES

INDUSTRIAL FINISH
LONG DOUBLE OFFSET PATTERN



Drop-forged from Selected Steel and heat-treated. Smooth finish.

Example of Order Nomenclature: "BXX-2024 WRENCH"

No.	Nominal Openings	Small Head		Large Head		Overall Length	Wgt. Each, Lbs.
		Diam.	Thick.	Diam.	Thick.		
BXX-1214	3/8 & 7/16	37/64	1/4	21/32	9/32	7-3/4	.13
BXX-1416	7/16 & 1/2	21/32	19/64	47/64	21/64	8-1/16	.21
BXX-1618	1/2 & 9/16	47/64	21/64	53/64	11/32	8-11/16	.25
BXX-1820	9/16 & 5/8	53/64	11/32	29/32	3/8	9-3/8	.27
BXX-2024	5/8 & 3/4	29/32	13/32	1-5/64	7/16	10-1/8	.42
BXX-2224	11/16 & 3/4	1	13/32	1-5/64	7/16	10-1/2	.44
BXX-2428	3/4 & 7/8	1-5/64	15/32	1-1/4	1/2	12	.58
BXX-2628	13/16 & 7/8	1-11/64	1/2	1-1/4	17/32	12-7/8	.71
BXX-3032	15/16 & 1	1-21/64	37/64	1-13/32	5/8	14-3/8	.98
BXX-3436	1-1/16 & 1-1/8	1-1/2	43/64	1-9/16	23/32	16-5/8	1.4
BXX-3440	1-1/16 & 1-1/4	1-1/2	11/16	1-25/32	3/4	17-1/4	1.8

WILLIAMS SQUARE BOX WRENCHES

INDUSTRIAL FINISH
SINGLE HEAD — 22½° ANGLE



For Set Screws, Square Cap Screws and Nuts

Drop-forged, heat-treated. Smooth finish.

Can be made to order with 8-point openings, at an additional charge.

Example of Order Nomenclature: "585 WRENCH"

FEDERAL SPEC:
GGG-W-636D-5, TYPE VIII, CLASS 2, 8-POINT, BOX, SET SCREW, S.H. 22½°

No.	Nominal Opening	Head		Overall Length	Weight Ea., Lbs.
		Diameter	Thickness		
580	3/16	1/2	1/4	3	.05
581	1/4	5/8	9/32	3-3/8	.08
582	5/16	11/16	5/16	3-3/4	.11
583	3/8	27/32	3/8	4-1/4	.17
584	7/16	31/32	7/16	4-7/8	.25
585	1/2	1-1/16	15/32	5-1/2	.33
586	9/16	1-3/16	1/2	6-1/4	.42
587	5/8	1-5/16	9/16	7	.61
588	3/4	1-9/16	5/8	8	.83
589	7/8	1-25/32	11/16	9	1.2
590	1	2	3/4	10	1.6

HEX-BOX WRENCHES

INDUSTRIAL FINISH

REGULAR PATTERN—15° ANGLE



Drop-forged and heat-treated. Smooth finish. Designed for use requiring an exceedingly strong tool and where head clearance is limited. Wrenches larger than No. 810 have tapered handle.

Handle can be bent above head at angles of 45° to 90° from opening, at an additional charge.

Example of Order Nomenclature: "808A WRENCH"

No.	Nominal Opening Across Flats	Head		Overall Length	Weight Ea., Lbs.
		Diameter	Thickness		
800	13/32	45/64	7/32	3-1/2	.08
801A	7/16	27/32	17/64	4	.11
801	1/2	27/32	17/64	4	.11
802A	9/16	61/64	5/16	4-7/8	.17
803A	5/8	1- 3/32	23/64	5-7/8	.25
803	11/16	1- 3/32	23/64	5-7/8	.25
804A	3/4	1- 1/4	13/32	6-7/8	.38
805	7/8	1-23/64	29/64	7-3/4	.52
806	15/16	1-35/64	1/2	8-3/4	.69
806B	1	1-35/64	1/2	8-3/4	.69
807	1- 1/16	1-25/32	9/16	9-7/8	.95
807A	1- 1/8	1-25/32	9/16	9-7/8	.95
808	1- 1/4	2- 1/16	9/16	11-1/2	1.4
808A	1- 5/16	2- 1/16	9/16	11-1/2	1.4
809	1- 7/16	2- 3/8	21/32	13-3/8	2.
809A	1- 1/2	2- 3/8	21/32	13-3/8	2.
810	1- 5/8	2- 5/8	3/4	15-1/4	2.9
810A	1-11/16	2- 5/8	3/4	15-1/4	2.9
811	1-13/16	2-29/32	13/16	17-1/8	3.1
811A	1- 7/8	2-29/32	13/16	17-1/8	3.1
812	2	3- 1/4	15/16	19	4.3
813	2- 3/16	3- 1/2	1	21	5.8
813A	2- 1/4	3- 1/2	1	21	5.8
814	2- 3/8	3- 3/4	1-1/16	23	7.3
815	2- 9/16	4- 1/8	1-1/8	25	8.9
815A	2- 5/8	4- 1/8	1-1/8	25	8.9
816	2- 3/4	4- 9/16	1-1/4	27	11.9
817A	3	4-13/16	1-3/8	30	16.2
817	3- 1/8	4-13/16	1-3/8	30	16.2
818A	3- 3/8	5- 1/4	1-1/2	34	20.3
818	3- 1/2	5- 1/4	1-1/2	34	20.3
819B	3- 3/4	5- 7/8	1-5/8	38	24.6
819	3- 7/8	5- 7/8	1-5/8	38	24.5
819AC	4- 1/8	6- 1/2	1-3/4	42	34.8
819A	4- 1/4	6- 1/2	1-3/4	42	34.5
820B	4- 1/2	7	1-7/8	46	41.5
820	4- 5/8	7	1-7/8	46	41.5

See Page 129 for ANSI Square and Hexagon Bolts and Nuts, as related to nominal wrench openings.

HEX-BOX WRENCHES

INDUSTRIAL FINISH

HEAVY PATTERN—15° ANGLE



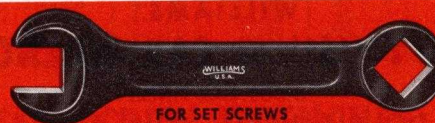
Drop-forged and heat-treated. Smooth finish. Designed for use requiring an exceedingly strong tool and where head clearance is limited. Wrenches larger than No. H809 have tapered handle.

Handle can be bent above head at angles of 45° to 90° from opening, at an additional charge.

No.	Nominal Opening Across Flats	Head		Overall Length	Weight Ea., Lbs.
		Diameter	Thickness		
H-808	1- 1/4	2- 1/16	13/16	11-1/2	1.6
H-809	1- 7/16	2- 3/8	15/16	13-3/8	2.5
H-809A	1- 1/2	2- 3/8	15/16	13-3/8	2.5
H-810	1- 5/8	2- 5/8	1-1/8	15-1/4	3.1
H-811	1-13/16	2-15/16	1-1/4	17	3.8
H-811A	1- 7/8	2-15/16	1-1/4	17	3.8
H-812	2	3- 1/4	1-3/8	19	5.2
H-813	2- 3/16	3- 1/2	1-1/2	21	6.5
H-813A	2- 1/4	3- 1/2	1-1/2	21	6.5
H-814	2- 3/8	3- 3/4	1-5/8	23	8.3
H-815	2- 9/16	4- 1/8	1-3/4	25	10.3
H-815A	2- 5/8	4- 1/8	1-3/4	25	10.3
H-816	2- 3/4	4- 9/16	1-7/8	27	13.8
H-817A	3	4-13/16	2	30	17.9
H-817	3- 1/8	4-13/16	2	30	17.9

TOOL POST WRENCHES

INDUSTRIAL FINISH



FOR SET SCREWS

Drop-forged, heat-treated. Smooth finish, head faces polished.

No.	Open End for Set Screw; Size	Closed End for Set Screw; Size	Head Thickness	Overall Length	Weight Ea., Lbs.
554	7/16	7/16	1/2	5-1/2	.45
555	1/2	1/2	9/16	6	.56
555C	9/16	9/16	9/16	6	.56
556	5/8	5/8	5/8	7	.80
557	3/4	3/4	11/16	7-5/8	.94

TOOL POST WRENCHES

INDUSTRIAL FINISH



For Nuts and Set Screws

Jaws of open end have opening angle of 15°. Box end opening is offset 15° from plane of handle.

Example of Order Nomenclature: "564 WRENCH"

No.	Open End			Box End			Overall Length	Wgt. Ea., Lbs.
	Nominal Opng.	Head		Nominal Opng.	Head			
		Width	Thick.		Diam.	Thick.		
562A	3/4	1-37/64	5/16	9/16	1- 9/32	9/16	8-3/4	.44
563B	7/8	1-51/64	11/32	1/2	1- 7/16	5/8	9-1/4	.56
563D	7/8	1-51/64	11/32	5/8	1- 7/16	5/8	9-1/4	.56
564	1-1/16	2- 1/64	3/8	5/8	1-19/32	11/16	9-7/8	.70
566	1-1/4	2- 3/16	7/16	3/4	1-25/32	3/4	10-3/4	1.

See Page 129 for ANSI Square and Hexagon Bolts and Nuts, as related to nominal wrench openings.



TEE-HANDLE SOCKET WRENCHES

INDUSTRIAL FINISH



Drop-forged and heat-treated. Smooth finish.
Special broaching to order in reasonable quantities.
Hexagon end of shank is designed for use in combination with another wrench. Pin-Handle can be removed by driving through.

Wrenches of shorter or longer lengths than stated in table can be furnished to order in quantities.

Example of Order Nomenclature: "970S WRENCH"

FEDERAL SPEC:

GGG-W-641D-3, TYPE I, CLASS 2, SOCKET, TEE HANDLE WRENCH

No.	Nominal Opening Across Flats	Head Diameter	Overall Length	Weight Ea., Lbs.
HEXAGON OPENINGS				
961A	5/16	1/2	4-1/4	.13
962D	3/8	5/8	4-1/2	.22
963D	7/16	11/16	4-7/8	.30
964A	1/2	3/4	5-1/4	.31
965D	9/16	7/8	5-3/4	.45
966D	5/8	1	6-1/8	.63
967A	11/16	1-1/8	6-1/2	.92
967D	3/4	1-1/8	6-1/2	.92
969A	7/8	1-3/8	7-3/8	1.3
970S	15/16	1-1/2	7-7/8	1.6
970D	1	1-1/2	7-7/8	1.6
971A	1- 1/16	1-5/8	8-1/4	1.9
971D	1- 1/8	1-5/8	8-1/4	1.9
973A	1- 1/4	1-7/8	9-1/8	2.9
975D	1- 1/2	2-1/8	10	4.2
976A	1- 5/8	2-3/8	10-3/8	5.3
978A	2	2-7/8	11-3/8	6.8

SQUARE OPENINGS

961H	3/16	1/2	4-1/4	.13
961J	1/4	1/2	4-1/4	.13
962H	5/16	5/8	4-1/2	.22
963H	3/8	11/16	4-7/8	.30
965H	7/16	7/8	5-3/4	.45
966H	1/2	1	6-1/8	.63
967H	9/16	1-1/8	6-1/2	.92
968H	5/8	1-1/4	7	1.1
969H	3/4	1-3/8	7-3/8	1.3
971H	7/8	1-5/8	8-1/4	1.9
973H	1	1-7/8	9-1/8	2.9

OFFSET SOCKET WRENCHES

INDUSTRIAL FINISH



Drop-forged and heat-treated. Smooth finish.

Special broaching to order in reasonable quantities.

These Offset Socket Wrenches, of shorter or longer lengths than stated in table, can be furnished to order in quantities.

Example of Order Nomenclature: "261J WRENCH"

FEDERAL SPEC:

GGG-W-641D-3, TYPE I, CLASS 1, SOCKET, TEE HANDLE WRENCH

No.	Nominal Opening Across Flats	Handle Offset in Clear from Face of Wrench	Head Diameter	Overall Length	Weight Ea., Lbs.
HEXAGON OPENINGS					
262D	3/8	1	5/8	3-7/8	.17
263D	7/16	1- 1/16	11/16	4-5/16	.20
264A	1/2	1- 1/4	3/4	5-1/8	.22
265D	9/16	1- 7/16	7/8	5-7/8	.36
266D	5/8	1- 9/16	1	6-1/4	.50
267A	11/16	1- 5/8	1-1/8	6-3/4	.67
267D	3/4	1- 5/8	1-1/8	6-3/4	.67
269A	7/8	2	1-3/8	8-3/8	1.1
270S	15/16	2- 3/16	1-1/2	9-1/8	1.4
270D	1	2- 3/16	1-1/2	9-1/8	1.4
271A	1- 1/16	2- 3/8	1-5/8	10	1.8
271D	1- 1/8	2- 3/8	1-5/8	10	1.8
273A	1- 1/4	2- 3/4	1-7/8	11-5/8	2.7
273B	1- 5/16	2- 3/4	1-7/8	11-5/8	2.7
275A	1- 7/16	3- 1/8	2-1/8	13-1/4	4.1
275D	1- 1/2	3- 1/8	2-1/8	13-1/4	4.1
276A	1- 5/8	3- 1/2	2-3/8	14-7/8	5.1
278A	2	4- 3/8	2-7/8	18-1/4	8.

SQUARE OPENINGS

261J	1/4	13/16	1/2	3-3/8	.08
262H	5/16	1	5/8	3-7/8	.17
263H	3/8	1- 1/16	11/16	4-5/16	.20
265H	7/16	1- 7/16	7/8	5-7/8	.36
266H	1/2	1- 9/16	1	6-1/4	.52
268H	5/8	1-13/16	1-1/4	7-1/2	.95
269H	3/4	2	1-3/8	8-3/8	1.
271H	7/8	2- 3/8	1-5/8	10	1.9
273H	1	2- 3/4	1-7/8	11-5/8	2.7

See Page 129 for ANSI Square and Hexagon Bolts and Nuts, as related to nominal wrench openings.

PIN SPANNERS

INDUSTRIAL FINISH



Pins are forged integral with wrench. Surfaces smoothed, pins milled, hardened all over.

Example of Order Nomenclature: "459 SPANNER"

FEDERAL SPEC:
GGG-W-665-B-1, TYPE II, GRADE A, PIN SPANNER

No.	For Circle; Diameter	Pin Size		Overall Length	Weight Ea., Lbs.
		Diameter	Length		
452	1	3/16	3/16	4	.08
453	1-1/4	13/64	13/64	4-1/2	.11
454	1-1/2	7/32	7/32	5	.13
455	1-3/4	15/64	15/64	5-1/2	.17
456	2	1/4	1/4	6	.20
457	2-1/4	17/64	17/64	6-1/2	.23
458	2-1/2	9/32	9/32	7	.31
459	2-3/4	19/64	19/64	7-1/2	.33
460	3	5/16	5/16	8	.44
461	3-1/4	21/64	21/64	8-1/2	.50
462	3-1/2	11/32	11/32	9	.56
463	3-3/4	23/64	23/64	9-1/2	.66
464	4	3/8	3/8	10	.70
466	5	7/16	7/16	12	1.3
468	6	1/2	1/2	14	1.9

WILLIAMS

FLAT HOOK SPANNERS



No.	For Circle; Diameter	Will finish for Circles; Diameter	Thick- ness	Overall Length	Weight Ea., Lbs.
403	1-1/4	1 to 1-1/4	7/32	4-3/4	.13
404	1-1/2	1-3/8 to 1-5/8	1/4	6	.25
405	2	1-3/4 to 2	1/4	7-1/8	.38
406	2-1/4	2-1/8 to 2-3/8	1/4	8-7/16	.48
407	2-5/8	2-1/2 to 2-3/4	1/4	9-3/4	.64
408	3-1/8	2-7/8 to 3-1/4	5/16	11	.98
409	3-3/4	3-3/8 to 3-7/8	5/16	12	1.2
410	4-3/8	4 to 4-1/2	5/16	13	1.3
412	5-3/4	5-1/4 to 5-3/4	7/16	15	2.6

WILLIAMS

LIGHT HOOK SPANNERS



† Length of handle can be varied if desired.

No.	For Circle; Diameter	Hook			Diameter Handle	Overall †Length,	Wgt. Ea., Lbs.
		Length	Width	Thickness			
491	1-3/16	1/16	3/8	7/32	3/8	6-1/2	.20
493	1-3/4	1/8	3/8	7/32	3/8	7-1/2	.22
494	2-1/8	1/8	3/8	7/32	3/8	8	.23
495	2-1/2	1/8	3/8	7/32	3/8	8-1/4	.23
496	2-3/4	1/8	3/8	7/32	3/8	8-1/2	.25
497	3	1/8	3/8	7/32	3/8	8-3/4	.25
498	3-1/2	1/8	3/8	7/32	3/8	9	.27

FACE SPANNERS

INDUSTRIAL FINISH



Pins are forged integral with wrench. Surfaces smoothed, pins milled, hardened all over.

Example of Order Nomenclature: "428 SPANNER"

FEDERAL SPEC:
GGG-W-665-B-1, TYPE III, CLASS 2, NON ADJUSTABLE FACE SPANNER

No.	Pins			Span of Jaws in Clear	Length from Center of Pins	Thick- ness	Weight Ea., Lbs.
	Distance C to C	Diam. Milled	Length				
418	1	3/16	3/16	11/16	4-1/2	3/16	.13
420	1-1/4	7/32	7/32	7/8	5	3/16	.17
422	1-1/2	7/32	7/32	1- 1/8	5-1/2	3/16	.20
424	1-3/4	7/32	7/32	1- 3/8	6	7/32	.28
426	2	1/4	1/4	1-19/32	6-1/2	7/32	.30
428	2-1/4	1/4	1/4	1-27/32	7	7/32	.42
430	2-1/2	9/32	9/32	2- 1/32	7-1/2	1/4	.52
432	2-3/4	9/32	9/32	2- 9/32	8	1/4	.59
434	3	5/16	5/16	2- 1/2	8-1/2	1/4	.70
436	3-1/4	5/16	5/16	2- 3/4	9-1/8	1/4	.82
438	3-1/2	5/16	5/16	3	9-3/4	1/4	.89
440	3-3/4	3/8	3/8	3- 3/16	10-3/8	1/4	1.
442	4	3/8	3/8	3- 7/16	11	1/4	1.1

WILLIAMS

ADJUSTABLE FLAT SPANNERS

INDUSTRIAL FINISH



A desirable and dependable tool for service where Center to Center dimensions vary. Pins milled, surfaces smooth, hardened.

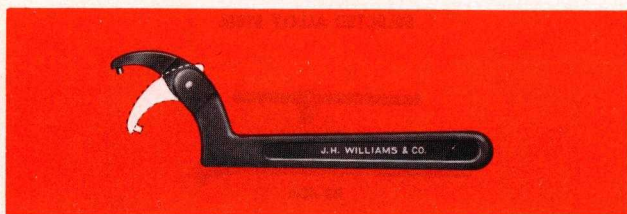
Example of Order Nomenclature: "483 SPANNER"

FEDERAL SPEC:
GGG-W-665-B-1, TYPE III, CLASS 1, ADJUSTABLE FACE SPANNER

No.	Extreme Capacity	Pin Size		Overall Length	Weight Ea., Lbs.
		Diameter	Length		
482	2	3/16	7/32	6-3/8	.33
483	3	1/4	9/32	8-1/4	.59
484	4	5/16	11/32	10-3/8	1.

ADJUSTABLE PIN SPANNERS

INDUSTRIAL FINISH



WITH ROUND PINS

Used for adjusting collars, lock nuts, rings, etc., used on various types of machine tool equipment. Surfaces smoothed, alloy steel jaw hardened and tempered.

Example of Order Nomenclature: "O-472A SPANNER"

No.	Capacity for Circles, Diameter	Thickness		Pin Size		Overall Length	Weight Ea., Lbs.
		Handle	Hook	Diam.	Length		
O-471	3/4 to 2	1/4	11/32	1/8	1/8	6-3/8	.27
O-471A	3/4 to 2	1/4	11/32	3/16	5/32	6-3/8	.27
O-472	1-1/4 to 3	9/32	13/32	3/16	3/16	8-1/8	.50
O-472A	1-1/4 to 3	9/32	13/32	1/4	7/32	8-1/8	.50
O-474	2 to 4-3/4	5/16	15/32	1/4	1/4	11-3/8	.99
O-474A	4-1/2 to 6-1/4	5/16	15/32	3/8	1/4	12-1/8	1.1

WILLIAMS HOOK SPANNERS

INDUSTRIAL FINISH



Made especially to service Face Plate Draw Nuts used on taper-nose spindles for new design lathes. Very efficient, also, for general work. Supplied with bearing pads and hook machined, fully hardened.

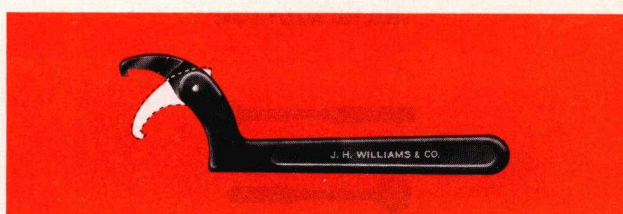
Example of Order Nomenclature: "412LS SPANNER"

*Can be furnished to order for circle 1/8" larger.

No.	For Circle; Diameter	For Lathe Spindle No.	Thickness, Hook End	Overall Length	Weight Ea., Lbs.
410LS	4-15/32	00	5/16	13	1.3
412LS	5- 1/2	0	7/16	15	2.3
414	* 7- 3/8	1	5/8	20	4.1
415	* 9- 1/4	2	11/16	23-1/4	5.7
416	*12- 1/2	3	3/4	30-3/4	8.7

ADJUSTABLE HOOK SPANNERS

INDUSTRIAL FINISH



Surfaces smoothed, jaw hardened and tempered. Especially serviceable on spindle bearings of lathes, milling machines and grinding machines.

Example of Order Nomenclature: "474B SPANNER"

FEDERAL SPEC:
GGG-W-665-B-1, TYPE I, CLASS 1, ADJUSTABLE HOOK SPANNER

No.	Capacity for Circles, Diameter	Thickness		Depth Hook	Overall Length	Weight Ea., Lbs.
		Handle	Hook			
471	3/4 to 2	1/4	11/32	1/8	6-3/8	.28
472	1-1/4 to 3	9/32	13/32	5/32	8-1/8	.52
474	2 to 4-3/4	5/16	15/32	3/16	11-3/8	.95
474A	4-1/2 to 6-1/4	5/16	15/32	1/4	12-1/8	1.1
474B	6-1/8 to 8-3/4	5/16	15/32	5/16	13-3/4	1.4

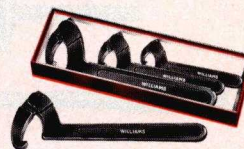
WILLIAMS ADJUSTABLE HOOK SPANNER SET

SET No. WS-401B

4 Wrenches Only

Weight, 3 lbs.

This type of spanner wrench is particularly serviceable on spindle bearings of lathes, milling and grinding machines.



One Ea.	Capacity for Circles, Diameter	One Ea.	Capacity for Circles, Diameter
471	3/4" to 2"	474	2" to 4 3/4"
472	1 1/4" to 3"	474A	4 1/2" to 6 1/4"

WILLIAMS BULL DOG WRENCHES

INDUSTRIAL FINISH



Will grip round, square, hexagon or any shape that will fit between their tough jaws. Drop-forged and heat-treated.

Example of Order Nomenclature: "BWB-4 1/2 BULLDOG"

No.	Capacity		Overall Length	Weight Ea., Lbs.
	Pipe	Rounds		
BWB-1	1/8 to 3/8	1/4 to 3/4	5-1/2	.25
BWB-2	1/4 to 3/4	1/2 to 1	9	.86
BWB-2-1/2	3/8 to 1	5/8 to 1-1/4	12-1/2	1.4
BWB-3	1/2 to 1-1/4	3/4 to 1-1/2	16	3.1
BWB-3-1/2	1/2 to 1-1/2	3/4 to 1-3/4	18-3/4	4.3
BWB-4	3/4 to 2	1 to 2-1/4	22	7.9
BWB-4-1/2	1 to 2-1/2	1-1/4 to 2-3/4	24	10.1
BWB-5	2 to 3	2-1/4 to 3-1/2	27	13.8
BWB-6	1/8 to 3/4	5/16 to 1	10	1.1

1/4 Inch SQ. DR. RATCHETS and DRIVERS

INDUSTRIAL FINISH

SELECTED ALLOY STEEL



The mechanism used in Williams BM-56 1/4" Square Drive Ratchet is similar in design to that used in the BB-56 3/8" Square Drive and BS-56 1/2" Square Drive models. One principle difference is in the number of teeth broached in the head. In order to maintain Williams strength standards, 30 teeth are used in this "miniature" ratchet allowing a handle swing of only 12 degrees. The double-ended pawl has three teeth on each end. Use hand or power drive sockets listed on pages 18 and 86.

No.	Description	Wgt. Ea., Lbs.
BM-42A	Flex Handle —5-3/4" long, flexible head, knurled grip	.25
M-42RK	Repair Kit for BM-42A—Tang, Spring and Pin...	.03
BM-56	Reversible Ratchet —4-3/4" long, knurled grip....	.19
BM-56RK	Repair Kit for BM-56—Ring, Washer, Ratchet Unit	.05

1/2 Inch SQ. DR. RATCHETS and DRIVERS

INDUSTRIAL FINISH

SELECTED ALLOY STEEL



Williams BS-71 and BS-71C 1/2" Square Drive Ratchets both have the same fine 45 tooth design as the BB-71 3/8" Square Drive Ratchet described in the upper right hand column.

The BS-71C Construction Ratchet has a long, round handle with tapered end, for aligning bolt holes of various diameters.

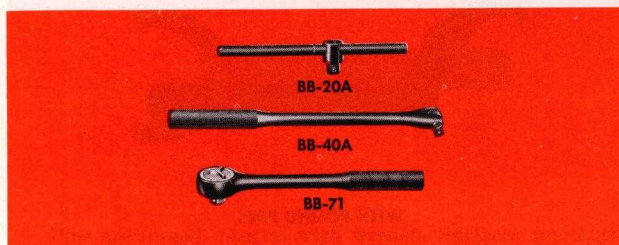
Sliding Tee, Flex Handle and both Ratchets listed below can be used with Supersockets listed on page 27 or Power Drive Sockets listed on page 88.

No.	Description	Wgt. Ea., Lbs.
BS-20A	Sliding Tee Handle —11" long.....	.96
BS-41A	Flex Handle —17" long, flex head, knurled grip....	1.8
S-41RK	Repair Kit for BS-41A—Tang, Spring and Pin....	.15
BS-71	Reversible Ratchet —10-1/2" long.....	1.4
BS-71C	Reversible Construction Ratchet —15" long.....	2.0
BS-71RK	Repair Kit for BS-71, BS-71C—Rings and Unit....	.28

3/8 Inch SQ. DR. RATCHETS and DRIVERS

INDUSTRIAL FINISH

SELECTED ALLOY STEEL



The BB-71 3/8" Square Drive Ratchet has 45 teeth broached in the head. It employs a triple-toothed, double ended oscillating pawl. One of a given set of teeth is in engagement with the gear in a no-load condition with the remaining teeth coming into engagement as the load is progressively increased. This provides an unusually strong ratchet with a handle swing of only 8 degrees. The on-axis shifter adds to the ease of operation. Use with hand or power drive sockets listed on pages 22 and 87.

No.	Description	Wgt. Ea., Lbs.
BB-20A	Sliding Tee Handle —6-1/2" long.....	.26
BB-40A	Flex Handle —9-5/8" long, flex head, knurled grip....	.57
B-40RK	Repair Kit for BB-40A—Tang, Spring and Pin....	.06
BB-71	Reversible Ratchet —7-3/8" long, knurled grip....	.66
BB-71RK	Repair Kit for BB-71—Ring, Washer, Ratchet Unit	.16

3/4 Inch SQ. DR. RATCHETS and DRIVERS

INDUSTRIAL FINISH

SELECTED ALLOY STEEL



In Williams BH-51 3/4" Square Drive Ratchet, the 24 tooth action is used because of the brute strength required in such a large size. In this size range, it is rare that the obstruction problems would require a ratchet having less than 15 degree handle swing or working arc. Here strength and stamina override ratchet increment refinements.

Sliding Tee, Flex Handle and Ratchet listed below can be used with Supersockets listed on page 33 or Power Drive Sockets listed on page 89.

No.	Description	Wgt. Ea., Lbs.
BH-20A	Sliding Tee Handle —17-1/2" long.....	2.7
BH-41A	Flex Handle —20" long, flex head, knurled grip....	4.1
H-41RK	Repair Kit for BH-41A—Tang, Spring and Pin....	.39
BH-51	Reversible Ratchet —19" long.....	5.1
H-51-1	Retaining Ring.....	...
H-51-2	Gear and Plug.....	...
H-51-3	Dog (Pawl).....	...
H-51-4	Bearing Pin.....	...
H-51-5	Spring (Plunger).....	...
H-51-6	Shifter Bolt.....	...
H-51-7	Shifter Bolt Pin.....	...
H-51-8	Plunger (Ball).....	...

6

POWER DRIVE

SOCKETS

For technical information about these products

Ask for Technical Bulletin TB-125 which covers design features and application of Williams Power Drive Sockets and Accessories.

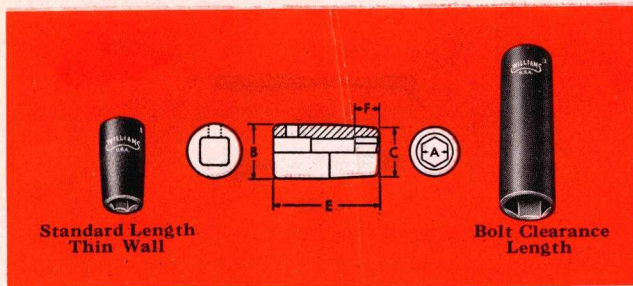


Use caution when adapting down to a smaller drive socket, to avoid overloading the smaller socket. Never adapt down more than to the next smallest drive size. Resultant breakage could cause serious injury.

6
POWER DRIVE
SOCKETS

1/4"

"O" SERIES-1/4 Inch SQUARE DRIVE-POWER DRIVE SOCKETS FOR ALL TYPES OF POWER WRENCHES



Made from extra tough Selected Alloy Steel and specially heat-treated to withstand the constant shock and pounding involved in electric and pneumatic impact nut setting and power nut running.

Example of Order Nomenclature: "30-609 SOCKET"

Nominal Opening A	No.	Nominal Dimensions				Weight Each, Lbs.
		Diam. Drive End B	Diam. Nose C	Length Overall E	Depth Opening F	

STANDARD LENGTH — THIN WALL

SINGLE HEXAGON OPENINGS

Industrial Finish

3/16	30-606	7/16	19/64	27/32	3/16	.02
7/32	30-607	7/16	21/64	27/32	13/64	.01
1/4	30-608	7/16	23/64	27/32	7/32	.02
9/32	30-609	7/16	13/32	27/32	15/64	.03
5/16	30-610	29/64	29/64	27/32	1/4	.02
11/32	30-611	31/64	31/64	27/32	9/32	.02
3/8	30-612	17/32	17/32	27/32	5/16	.04
7/16	30-614	39/64	39/64	27/32	9/32	.03
1/2	30-616	43/64	43/64	27/32	21/64	.04

BOLT CLEARANCE LENGTH SINGLE HEXAGON OPENINGS

Industrial Finish

FEDERAL SPEC: GGG-W-660A, TYPE I, CLASS 1, STYLE B

1/4	10-608	7/16	7/16	2	7/32	.05
5/16	10-610	1/2	1/2	2	1/4	.06
3/8	10-612	9/16	9/16	2	5/16	.08
7/16	10-614	5/8	5/8	2	9/32	.09



EXTENSIONS

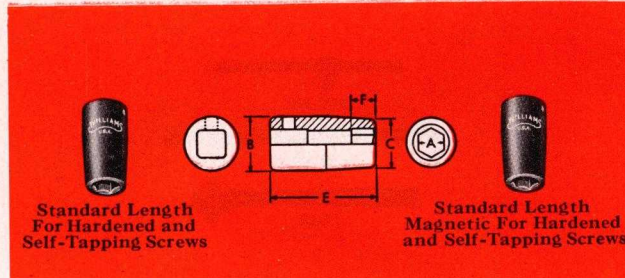
Male squares have spring plunger
For replacement locking device parts see page 92

Example of Order Nomenclature: "O-102A EXTENSION"

FEDERAL SPEC: GGG-W-660A, TYPE II, EXTENSION

No.	Length	Square Male	Square Female	Wgt. Ea., Lbs.
0-102A	2	1/4	1/4	.06
0-106A	6	1/4	1/4	.09

See Page 129 for ANSI Square and Hexagon Bolts and Nuts, as related to nominal wrench openings.



Sockets for use on hardened and self-tapping screws are specially hardened for this type of application. Also available with Alnico magnets. These are excellent high production sockets for appliance, electronic and automotive applications.

Example of Order Nomenclature: "20-608M SOCKET"

Nominal Opening A	No.	Nominal Dimensions				Weight Each, Lbs.
		Diam. Drive End B	Diam. Nose C	Length Overall E	Depth Opening F	

STANDARD LENGTH

SINGLE HEXAGON OPENINGS

FOR HARDENED AND SELF-TAPPING SCREWS

Finish—Copper colored for positive identification

FEDERAL SPEC: GGG-W-660A, TYPE I, CLASS 5, STYLE A

3/16	20-606	7/16	5/16	7/8	1/16	.02
1/4	20-608	15/32	15/32	7/8	7/64	.02
5/16	20-610	17/32	17/32	7/8	1/8	.03
3/8	20-612	5/8	5/8	7/8	13/64	.03
7/16	20-614	11/16	11/16	15/16	15/64	.05
1/2	20-616	3/4	3/4	15/16	15/64	.06

STANDARD LENGTH

SINGLE HEXAGON OPENINGS-MAGNETIC FOR HARDENED AND SELF-TAPPING SCREWS

Finish—Copper colored for positive identification

3/16	20-606M	7/16	5/16	7/8	1/16	.02
1/4	20-608M	15/32	15/32	7/8	7/64	.02
1/4	20-608MT	15/32	25/64	7/8	7/64	.02
5/16	20-610M	17/32	17/32	7/8	1/8	.03
5/16	20-610MT	1/2	15/32	7/8	1/8	.03
3/8	20-612M	5/8	5/8	7/8	3/16	.03
7/16	20-614M	11/16	11/16	15/16	15/64	.04



HEXAGON — SQUARE SHANKS

Male squares have spring plunger
For replacement locking device parts see page 92

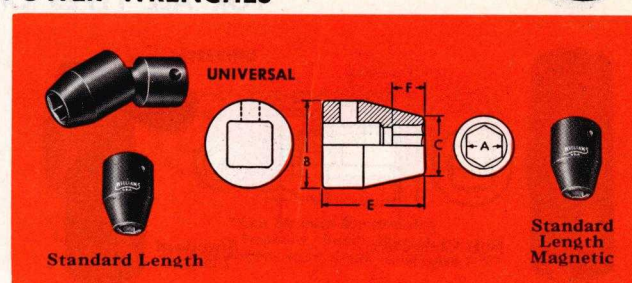
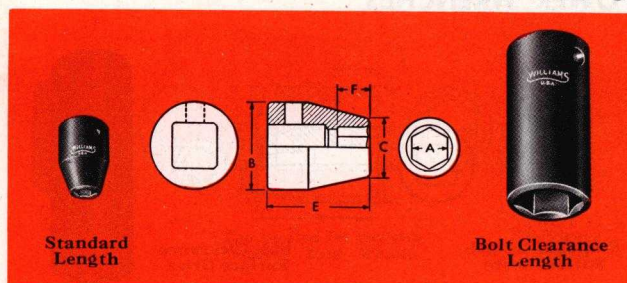
Example of Order Nomenclature: "O-04A HEX-SQ. SHANK"

No.	Length	Square Male	Hex Male	Wgt. Ea., Lbs.
0-02A	2	1/4	1/4	.05
0-04A	4	1/4	1/4	.11

"2" SERIES-3/8 Inch SQUARE DRIVE-POWER DRIVE SOCKETS

FOR ALL TYPES OF POWER WRENCHES

3/8



Made from extra tough Selected Alloy Steel and specially heat-treated to withstand the constant shock and pounding involved in electric and pneumatic impact nut setting and power nut running. Industrial finish.

Sockets for use on hardened and self-tapping screws are specially hardened for this type of application. Also available with Alnico magnets. These are excellent high production sockets for appliance, electronic and automotive applications.

Example of Order Nomenclature: "2-106A EXTENSION"

Nominal Opening A	No.	Nominal Dimensions				Weight Each, Lbs.
		Drive End Diam. B	Nose Diam. C	Overall Lgth. E	Opening Depth F	

STANDARD LENGTH SINGLE HEXAGON OPENINGS

FEDERAL SPEC: GGG-W-660A, TYPE I, CLASS 1, STYLE A

5/16	2-610	45/64	15/32	1	7/32	.06
11/32	2-611	45/64	33/64	1	1/4	.06
3/8	2-612	45/64	9/16	1	1/4	.06
7/16	2-614	45/64	41/64	1-1/16	9/32	.06
1/2	2-616	3/4	3/4	1-1/8	21/64	.06
9/16	2-618	55/64	55/64	1-3/16	13/32	.10
19/32	2-619	55/64	55/64	1-3/16	13/32	.08
5/8	2-620	59/64	59/64	1-3/16	13/32	.11
11/16	2-622	1- 1/64	1- 1/64	1-3/16	7/16	.14
3/4	2-624	1- 5/64	1- 5/64	1-1/4	9/16	.17

STANDARD LENGTH THIN WALL DOUBLE HEXAGON OPENINGS

1/4	32-1208	43/64	3/8	1-1/8	7/32	.06
5/16	32-1210	43/64	7/16	1-1/8	1/4	.05
3/8	32-1212	43/64	35/64	1-1/8	9/32	.05
7/16	32-1214	43/64	5/8	1-1/8	5/16	.06
1/2	32-1216	45/64	45/64	1-3/16	11/32	.07
9/16	32-1218	25/32	25/32	1-3/16	3/8	.09
5/8	32-1220	55/64	55/64	1-3/16	13/32	.09
11/16	32-1222	15/16	15/16	1-3/16	7/16	.11
3/4	32-1224	1- 1/64	1- 1/64	1-3/16	15/32	.15

BOLT CLEARANCE LENGTH SINGLE HEXAGON OPENINGS

FEDERAL SPEC: GGG-W-660A, TYPE I, CLASS 1, STYLE B

5/16	12-610	11/16	15/32	2-1/2	1/4	.09
3/8	12-612	11/16	35/64	2-1/2	5/16	.09
7/16	12-614	11/16	41/64	2-1/2	9/32	.09
1/2	12-616	3/4	3/4	2-1/2	21/64	.09
9/16	12-618	13/16	13/16	2-1/2	13/32	.11
5/8	12-620	15/16	15/16	2-1/2	29/64	.13
11/16	12-622	1	1	2-1/2	29/64	.16
3/4	12-624	1- 1/16	1- 1/16	2-1/2	9/16	.19

SET No. WS-2-9R

9 Standard Sockets
with RB-10 Rail and Clips



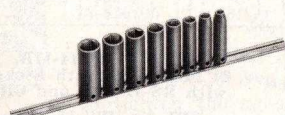
SET No. WS-2-9T

Sockets Only
Weight, .85 lb.

One Ea.	Description	One Ea.	Description	One Ea.	Description
2-610	5/16" 6 Pt	2-614	7/16" 6 Pt	2-620	5/8" 6 Pt
2-611	11/32" 6 Pt	2-616	1/2" 6 Pt	2-622	11/16" 6 Pt
2-612	3/8" 6 Pt	2-618	9/16" 6 Pt	2-624	3/4" 6 Pt

SET No. WS-12-8R

8 Blt. Cl. Lgth. Sockets
with RB-10 Rail and Clips



SET No. WS-12-8T

Sockets Only
Weight, 1.3 lbs.

One Ea.	Description	One Ea.	Description	One Ea.	Description
12-610	5/16" Dp	12-616	1/2" Dp	12-622	11/16" Dp
12-612	3/8" Dp	12-618	9/16" Dp	12-624	3/4" Dp
12-614	7/16" Dp	12-620	5/8" Dp		

See Page 129 for ANSI Square and Hexagon Bolts and Nuts, as related to nominal wrench openings.

Nominal Opening A	No.	Nominal Dimensions				Weight Each, Lbs.
		Drive End Diam. B	Nose Diam. C	Overall Lgth. E	Opening Depth F	

STANDARD LENGTH SINGLE HEXAGON OPENINGS FOR HARDENED AND SELF-TAPPING SCREWS

Finish—Copper colored for positive identification

5/16	22-610	11/16	1/2	1-1/16	1/8	.06
3/8	22-612	3/4	5/8	1-1/16	3/16	.08
7/16	22-614	3/4	3/4	1-1/16	15/64	.09
1/2	22-616	13/16	13/16	1-1/16	15/64	.10

STANDARD LENGTH SINGLE HEX OPENINGS MAGNETIC FOR HARDENED AND SELF-TAPPING SCREWS

Finish—Copper colored for positive identification

5/16	22-610M	11/16	1/2	1-1/16	1/8	.07
3/8	22-612M	3/4	5/8	1-1/16	3/16	.09
7/16	22-614M	3/4	3/4	1-1/16	15/64	.10
1/2	22-616M	13/16	13/16	1-1/16	15/64	.11

UNIVERSAL SINGLE HEXAGON OPENINGS Industrial Finish

3/8	42-612	3/4	9/16	2-1/32	5/16	.19
7/16	42-614	3/4	5/8	2-1/32	5/16	.19
1/2	42-616	3/4	23/32	2-1/32	5/16	.19
9/16	42-618	3/4	13/16	2-1/8	13/32	.19
5/8	42-620	3/4	7/8	2-3/16	29/64	.19



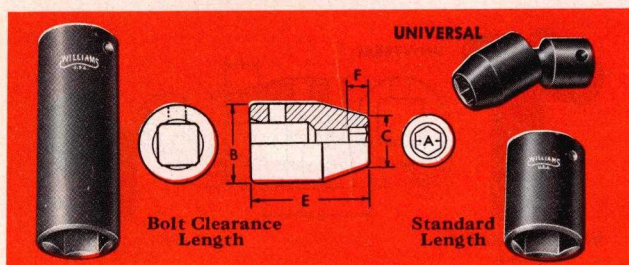
FEDERAL SPEC: GGG-W-660A, TYPE III, ADAPTER,
GGG-W-660A, TYPE II, EXTENSION, GGG-W-660A, TYPE IV, UNIV. JOINT

No.	Description	Square Female	Male	Length	Wgt. Ea. Lbs.
2-02A	Hexagon—Square Shank	...	3/8Sqx1/4 Hex	2	.06
2-33A	Hexagon—Square Shank	...	3/8Sqx7/16 Hex	2-3/4	.15
2-35A	Hexagon—Square Shank	...	3/8Sqx7/16 Hex	5	.28
2-38A	Hexagon—Square Shank	...	3/8Sqx7/16 Hex	8	.53
2-4A	Adapter	3/8	1/2 Square	1-3/8	.14
2-103A	Extension	3/8	3/8 Square	3	.09
2-106A	Extension	3/8	3/8 Square	6	.35
2-140A	Universal Joint, O.D. 7/8", range 55°...	3/8	3/8 Square	2-5/16	.16



1/2"

"4" SERIES-1/2 Inch SQUARE DRIVE-POWER DRIVE SOCKETS FOR ALL TYPES OF POWER WRENCHES



INDUSTRIAL FINISH

Nominal Opening A	No.	Nominal Dimensions				Weight Each, Lbs.
		Drive End Diam. B	Nose Diam. C	Overall Lgth E	Opening Depth F	
STANDARD LENGTH—SINGLE HEXAGON OPENINGS						
FEDERAL SPEC: GGG-W-660A, TYPE I, CLASS 1, STYLE A						
3/8	4-612	57/64	39/64	1-1/2	5/16	.15
7/16	4-614	57/64	11/16	1-1/2	25/64	.15
1/2	4-616	61/64	25/32	1-1/2	21/64	.19
9/16	4-618	61/64	7/8	1-1/2	13/32	.19
19/32	4-619	57/64	57/64	1-1/2	5/16	.16
5/8	4-620	61/64	61/64	1-1/2	29/64	.18
11/16	4-622	1- 1/16	1- 1/16	1-1/2	29/64	.22
3/4	4-624	1- 9/64	1- 9/64	1-5/8	9/16	.27
25/32	4-625	1- 1/8	1- 1/8	1-1/2	7/16	.26
13/16	4-626	1-15/64	1-15/64	1-5/8	39/64	.34
7/8	4-628	1-21/64	1-21/64	1-5/8	39/64	.35
15/16	4-630	1-23/64	1-23/64	1-3/4	23/32	.43
1	4-632	1-29/64	1-29/64	1-3/4	35/64	.50
1-1/16	4-634	1-33/64	1-33/64	2	13/16	.63
1-1/8	4-636	1-19/32	1-19/32	2	13/16	.70
1-3/16	4-638	1- 5/8	1- 5/8	2	7/8	.74
1-1/4	4-640	1-11/16	1-11/16	2	29/32	.72

STD. LENGTH—THIN WALL—DOUBLE HEXAGON OPENINGS

7/16	34-1214	57/64	41/64	1- 1/2	25/64	.11
1/2	34-1216	57/64	23/32	1- 1/2	25/64	.11
9/16	34-1218	57/64	51/64	1- 1/2	1/2	.13
5/8	34-1220	57/64	57/64	1-17/32	1/2	.14
11/16	34-1222	61/64	61/64	1-17/32	17/32	.17
3/4	34-1224	1- 1/32	1- 1/32	1- 9/16	9/16	.19
13/16	34-1226	1- 7/64	1- 7/64	1-19/32	5/8	.23
7/8	34-1228	1- 3/16	1- 3/16	1-41/64	5/8	.27
15/16	34-1230	1-19/64	1-19/64	1-41/64	21/32	.29

BOLT CLEARANCE LENGTH—SINGLE HEXAGON OPENINGS

FEDERAL SPEC: GGG-W-660A, TYPE I, CLASS 1, STYLE B

3/8	14-612	7/8	39/64	3-1/4	5/16	.37
7/16	14-614	7/8	11/16	3-1/4	9/32	.37
1/2	14-616	15/16	25/32	3-1/4	23/64	.33
9/16	14-618	15/16	7/8	3-1/4	13/32	.30
5/8	14-620	1-	1-	3-1/4	29/64	.35
11/16	14-622	1- 1/16	1- 1/16	3-1/4	29/64	.44
3/4	14-624	1- 1/8	1- 1/8	3-1/4	9/16	.47
13/16	14-626	1- 1/4	1- 1/4	3-1/4	39/64	.57
7/8	14-628	1- 5/16	1- 5/16	3-1/2	39/64	.71
15/16	14-630	1- 3/8	1- 3/8	3-1/2	23/32	.81
1	14-632	1- 7/16	1- 7/16	3-1/2	35/64	.89

UNIVERSAL—SINGLE HEXAGON OPENINGS

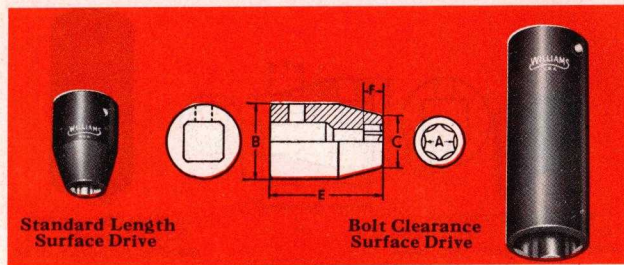
1/2	44-616	1	25/32	2- 3/8	5/16	.37
9/16	44-618	1	55/64	2- 7/16	3/8	.38
5/8	44-620	1	15/16	2- 7/16	5/16	.40
11/16	44-622	1	1- 1/32	2- 5/8	29/64	.41
3/4	44-624	1	1- 1/8	2-23/32	9/16	.41
13/16	44-626	1	1- 3/16	2-27/32	39/64	.45
7/8	44-628	1	1-17/64	2-27/32	39/64	.46
15/16	44-630	1	1- 3/8	2-15/16	23/32	.52
1	44-632	1	1- 7/16	2-15/16	33/64	.53

FLIP SOCKET FOR WHEEL LUG NUTS AND BOLTS

A time-saving double-ended hex socket for use with 1/2" square drive impact wrenches.

Nominal Openings	No.	Nominal Dimensions		Wgt. Ea. Lbs.
		Length	Diameter	
3/4 & 13/16	4-2426	2-3/16	1-1/4	.48

See Page 129 for ANSI Square and Hexagon Bolts and Nuts, as related to nominal wrench openings.



INDUSTRIAL FINISH

Nominal Opening A	No.	Nominal Dimensions				Weight Each, Lbs.
		Drive End Diam. B	Nose Diam. C	Overall Lgth E	Opening Depth F	
STD. LENGTH—SURFACE DRIVE—SINGLE HEX OPENINGS						
7/16	4-614A	7/8	11/16	1-1/2	9/32	.13
1/2	4-616A	15/16	25/32	1-1/2	21/64	.16
9/16	4-618A	15/16	55/64	1-1/2	13/32	.16
5/8	4-620A	15/16	15/16	1-1/2	29/64	.16
11/16	4-622A	1- 1/32	1- 1/32	1-1/2	29/64	.19
3/4	4-624A	1- 7/64	1- 7/64	1-1/2	9/16	.23
13/16	4-626A	1- 3/16	1- 3/16	1-1/2	39/64	.28
7/8	4-628A	1-17/64	1-17/64	1-5/8	39/64	.31
BOLT CLEAR. LGTH—SURFACE DRIVE—SINGLE HEX OPNGS						
7/16	14-614A	7/8	11/16	3-1/4	9/32	.34
1/2	14-616A	15/16	25/32	3-1/4	21/64	.40
9/16	14-618A	15/16	7/8	3-1/4	13/32	.36
5/8	14-620A	1-	1-	3-1/4	29/64	.33
3/4	14-624A	1- 1/8	1- 1/8	3-1/4	9/16	.50
13/16	14-626A	1- 1/4	1- 1/4	3-1/4	39/64	.56



FEDERAL SPEC: GGG-W-660A, TYPE III, ADAPTER, GGG-W-660A, TYPE II, EXTENSION, GGG-W-660A, TYPE IV, UNIV. JOINT

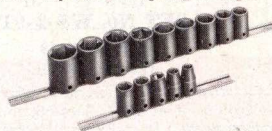
No.	Description	Sq. F	Male	Length	Wgt.
4-2A	Adapter	1/2	3/8 Square	1- 1/2	.13
4-5A	Adapter	1/2	5/8 Square	1-11/16	.23
4-6	Adapter	1/2	3/4 Square	1-13/16	.35
4-33A	Hexagon—Square Shank	...	1/2Sqx7/16 Hex	2- 3/4	.18
4-35A	Hexagon—Square Shank	...	1/2Sqx7/16 Hex	5	.40
4-53A	Hexagon—Square Shank	...	1/2Sqx5/8 Hex	3	.28
4-55A	Hexagon—Square Shank	...	1/2Sqx5/8 Hex	5	.53
4-105A	Extension	1/2	1/2 Square	5- 1/2	.54
4-110A	Extension	1/2	1/2 Square	10	1.
4-140A	Universal Joint, O.D. 1-1/8", range 55°	1/2	1/2 Square	2-15/16	.36

5/8" SQ. DRIVE ADAPTERS

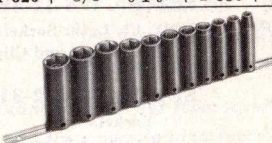
5-4A	Adapter	5/8	*1/2 Square	1-7/8	.35
5-6	Adapter	5/8	13/4 Square	2	.43

*Male Square has Spring Plunger

†Male Square has thru Pin Hole



No.	Description	No.	Description	No.	Description
4-612	3/8" 6 Pt	4-622	11/16" 6 Pt	4-632	1" 6 Pt
4-614	7/16" 6 Pt	4-624	3/4" 6 Pt	4-634	1-1/16" 6 Pt
4-616	1/2" 6 Pt	4-626	13/16" 6 Pt	4-636	1-1/8" 6 Pt
4-618	9/16" 6 Pt	4-628	7/8" 6 Pt	4-640	1-1/4" 6 Pt
4-620	5/8" 6 Pt	4-630	15/16" 6 Pt		

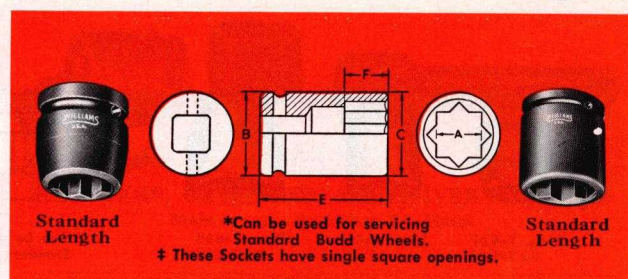
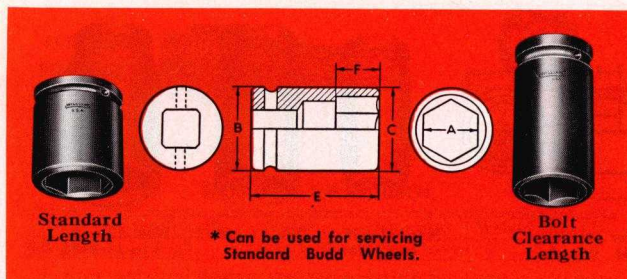


No.	Description	No.	Description	No.	Description
14-612	3/8" Dp	14-620	5/8" Dp	14-628	7/8" Dp
14-614	7/16" Dp	14-622	11/16" Dp	14-630	15/16" Dp
14-616	1/2" Dp	14-624	3/4" Dp	14-632	1" Dp
14-618	9/16" Dp	14-626	13/16" Dp		

"6" SERIES-3/4 Inch SQUARE DRIVE-POWER DRIVE SOCKETS

FOR ALL TYPES OF POWER WRENCHES

3/4"



Example of Order Nomenclature: "16-640 SOCKET"

Nominal Opening A	No.	Nominal Dimensions				Weight Each, Lbs.
		Diam. Drive End B	Diam. Nose C	Length Overall E	Depth Opening F	

STANDARD LENGTH SINGLE HEXAGON OPENINGS Industrial Finish

FEDERAL SPEC: GGG-W-660A, TYPE I, CLASS 1, STYLE A

5/8	6-620	1-5/8	1- 3/32	1-3/4	29/64	.62
11/16	6-622	1-5/8	1- 5/32	1-3/4	29/64	.61
3/4	6-624	1-5/8	1- 1/4	1-3/4	9/16	.62
25/32	6-625	1-5/8	1- 9/32	1-3/4	7/16	.46
13/16	6-626	1-5/8	1- 3/8	1-7/8	39/64	.69
7/8	6-628	1-5/8	1- 1/2	1-7/8	39/64	.70
15/16	6-630	1-5/8	1- 9/16	2	23/32	.75
1	6-632	1-5/8	1- 5/8	2	35/64	.78
1-1/16	6-634	1-5/8	1-11/16	2	13/16	.78
1-1/8	6-636	1-5/8	1- 3/4	2-1/8	13/16	.80
1-3/16	6-638	1-5/8	1- 7/8	2-1/4	7/8	.95
1-1/4	6-640	1-3/4	2	2-1/4	29/32	1.1
1-5/16	6-642	1-3/4	2- 1/16	2-1/4	49/64	1.2
1-3/8	6-644	1-3/4	2- 1/8	2-1/4	49/64	1.3
1-7/16	6-646	1-3/4	2- 1/4	2-1/4	49/64	1.4
*1-1/2	6-648	1-3/4	2- 5/16	2-3/8	7/8	1.5
1-5/8	6-652	1-7/8	2- 7/16	2-3/8	7/8	1.7
1-11/16	6-654	1-7/8	2- 1/2	2-3/8	1	1.7

BOLT CLEARANCE LENGTH SINGLE HEXAGON OPENINGS Industrial Finish

FEDERAL SPEC: GGG-W-660A, TYPE I, CLASS 1, STYLE B

5/8	16-620	1-5/8	1- 3/32	3-1/4	29/64	1.1
11/16	16-622	1-5/8	1- 5/32	3-1/4	29/64	1.3
3/4	16-624	1-5/8	1- 1/4	3-1/4	9/16	1.3
13/16	16-626	1-5/8	1- 3/8	3-1/4	39/64	1.3
7/8	16-628	1-5/8	1- 1/2	3-1/2	39/64	1.4
15/16	16-630	1-5/8	1- 9/16	3-1/2	23/32	1.4
1	16-632	1-5/8	1- 5/8	3-1/2	35/64	1.3
1-1/16	16-634	1-5/8	1-11/16	3-1/2	13/16	1.3
1-1/8	16-636	1-5/8	1- 3/4	3-1/2	13/16	1.4
1-3/16	16-638	1-5/8	1- 7/8	3-1/2	7/8	1.5
1-1/4	16-640	1-3/4	2	3-1/2	29/32	1.9
1-5/16	16-642	1-3/4	2- 1/16	3-1/2	49/64	1.9
1-3/8	16-644	1-3/4	2- 1/8	3-1/2	49/64	2.1
*1-7/16	16-646	1-3/4	2- 1/4	3-1/2	49/64	2.3
1-1/2	16-648	1-3/4	2- 5/16	3-1/2	7/8	2.3
1-5/8	16-652	1-3/4	2- 7/16	3-1/2	7/8	2.5

3/4" SQ. DRIVE FOR SERVICING BUDD WHEELS



Sockets 6-4BW and 6-7BW each have two openings (13/16" sq. and 1-1/2" hex) in the same socket. They are designed for quick application and removal of all "on-the-road" Budd type wheels. Their use eliminates the need of two separate sockets.

For checking the tightness of installed wheels, the 1-1/2" hex opening of either 6-4BW or 6-7BW may be used with 16-426BW to tighten the square-ended Budd stud separately.

No.	Length	"O" Ring No.	RETAINER PINS		Weight Each
			No.	Length	
6-4BW	4	7-1B	7-2D	1-7/8	3.4
6-7BW	7-1/2	6-1A	6-2C	1-1/2	5.7
16-426BW	4	6-1A	6-2B	1-1/8	1.7

1" SQ. DRIVE FOR SERVICING BUDD WHEELS



Sockets 7-4BW and 7-9BW each have two openings (13/16" sq. and 1-1/2" hex) in the same socket. They are designed for quick application and removal of all "on-the-road" Budd type wheels. Their use eliminates the need of two separate sockets.

For checking the tightness of installed wheels, the 1-1/2" hexagon opening of either 7-4BW or 7-9BW may be used with 17-426BW to tighten the square-ended Budd stud separately.

No.	Length	"O" Ring No.	RETAINER PINS		Weight Each
			No.	Length	
7-4BW	4	7-1B	7-2D	1-7/8	3.2
7-9BW	9	7-1B	7-2D	1-7/8	6.7
17-426BW	4	7-1B	7-2D	1-7/8	1.8

For Retainer Pins and "O" Rings to fit above Sockets, Adapters and Extensions, see page 92.



Male squares have thru Pin Holes

FEDERAL SPEC: GGG-W-660A, TYPE III, ADAPTER.

GGG-W-660A, TYPE II, EXTENSION, GGG-W-660A, TYPE IV, UNIV. JOINT

No.	Description	Square Female	Square Male	Length	Wgt. Ea., Lbs.
6-4A	Adapter	3/4	1/2	2-1/16	.70
6-7	Adapter	3/4	1	2-1/2	.88
6-107	Extension	3/4	3/4	7	1.8
6-110	Extension	3/4	3-4	10	2.6
6-113	Extension	3/4	3/4	13	3.3
6-140	Universal O.D. 1-3/4" range 55°	3/4	3/4	3-5/16	1.3

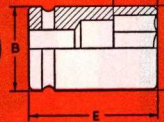
1"

"7" SERIES - 1 Inch SQUARE DRIVE - POWER DRIVE SOCKETS

FOR ALL TYPES OF POWER WRENCHES

Nos. 7-624
to 7-644

No. 7-646

Nos. 7-648
to 7-6184* Can be used for servicing
Standard Budd Wheels.Nos. 17-628
to 17-644

No. 17-646

Nos. 17-648
to 17-6184

Example of Order Nomenclature: "7-6100 SOCKET"

Nominal Opening A	No.	Nominal Dimensions				Weight Each, Lbs.
		Drive End Diam. B	Nose Diam. C	Overall Lgth. E	Opening Depth F	

STANDARD LENGTH SINGLE HEXAGON OPENINGS Industrial Finish

FEDERAL SPEC: GGG-W-660A, TYPE I, CLASS 1, STYLE A

3/4	7-624	2	1- 7/16	2- 1/16	1/2	1.1
13/16	7-626	2	1- 1/2	2- 3/16	17/32	1.1
7/8	7-628	2	1-17/32	2- 3/16	17/32	1.2
15/16	7-630	2	1-19/32	2- 3/16	5/8	1.2
1- 1/16	7-632	2	1- 3/4	2- 1/4	35/64	1.3
1- 1/8	7-634	2	1- 3/4	2- 1/4	21/32	1.2
1- 3/16	7-636	2-1/8	1-13/16	2- 3/8	11/16	1.5
1- 1/4	7-638	2-1/8	1- 7/8	2- 7/16	3/4	1.5
1- 5/16	7-640	2-1/8	2	2- 7/16	13/16	1.5
1- 3/8	7-642	2-1/8	2- 1/16	2- 9/16	49/64	1.6
1- 7/16	7-644	2-1/8	2- 1/8	2- 9/16	49/64	1.3
1- 1/2	7-646	2-1/4	2- 1/4	2- 9/16	49/64	1.8
1- 9/16	7-648	2-1/4	2- 5/16	2- 5/8	7/8	1.9
1- 5/8	7-650	2-1/4	2- 3/8	2- 5/8	7/8	2.
1-11/16	7-652	2-1/4	2- 7/16	2-11/16	1	1.8
1- 3/4	7-654	2-1/4	2- 9/16	2-11/16	1	2.3
1-13/16	7-656	2-1/4	2- 5/8	2-11/16	1	2.4
1- 7/8	7-658	2-1/4	2- 3/4	2- 3/4	1	2.
1-15/16	7-660	2-1/4	2- 7/8	2- 7/8	1- 3/32	2.8
2	7-662	2-1/4	2- 7/8	2- 7/8	1- 3/32	2.4
2- 1/16	7-664	2-1/4	3	2-15/16	1- 3/32	2.3
2- 1/8	7-666	2-1/4	3	3- 1/16	1-13/64	2.3
2- 3/16	7-668	2-3/8	3- 1/8	3- 1/8	1-13/64	3.6
2- 1/4	7-670	2-3/8	3- 1/4	3- 1/8	1-13/64	3.8
2- 5/16	7-672	2-3/8	3- 1/4	3- 1/4	1- 5/16	3.8
2- 3/8	7-674	2-3/8	3- 1/2	3- 5/16	1- 5/16	4.3
2- 7/16	7-676	2-3/8	3- 1/2	3- 5/16	1- 5/16	4.5
2- 1/2	7-678	2-3/8	3- 1/2	3- 1/2	1-25/64	4.5
2- 9/16	7-680	2-3/8	3- 3/4	3- 1/2	1-25/64	5.
2- 5/8	7-682	2-3/8	3- 3/4	3- 1/2	1-25/64	5.4
2-11/16	7-684	2-3/8	3- 3/4	3-11/16	1- 1/2	5.4
2- 3/4	7-686	2-3/8	3- 7/8	3-11/16	1- 1/2	5.8
2-13/16	7-688	2-3/8	3- 7/8	3-11/16	1- 1/2	5.4
2- 7/8	7-690	2-3/8	4	3- 7/8	1-39/64	6.4
2-15/16	7-692	2-3/8	4	3-15/16	1-39/64	5.9
3	7-694	2-3/8	4- 1/8	3-15/16	1-39/64	6.5
3- 1/8	7-696	2-3/8	4- 1/4	4- 1/16	1-23/32	7.1
3- 1/4	7-6100	2-3/8	4- 3/8	4- 1/8	1-23/32	7.5
3- 3/8	7-6104	2-3/8	4- 1/2	4- 1/8	1-23/32	7.5
3- 1/2	7-6108	2-3/8	4- 5/8	4- 1/2	1-59/64	8.6
3- 5/8	7-6112	2-3/8	4- 3/4	4- 1/2	1-59/64	8.9
4	7-6116	2-3/8	5	4- 1/2	1-59/64	9.9

Sockets marked* are Non-Stock, available on special order only.

FEDERAL SPEC: GGG-W-660A, TYPE I, CLASS 1, STYLE A

3-11/16	7-6118	3-1/4	5- 1/4	4- 9/16	2- 3/16	12.9
3- 3/4	7-6120	3-1/4	5- 1/4	4- 9/16	2-15/64	12.6
3-13/16	7-6122	3-1/4	5- 1/4	4- 9/16	2-17/64	12.2
3- 7/8	7-6124	3-1/4	5- 1/4	4- 9/16	2- 5/16	11.8
3-15/16	7-6126	3-1/4	5- 1/2	4- 7/8	2-23/64	14.6
4	7-6128	3-1/4	5- 1/2	4- 7/8	2-25/64	14.1
4- 1/16	7-6130	3-1/4	5- 3/4	4- 7/8	2- 7/16	16.1
4- 1/8	7-6132	3-1/4	5- 3/4	4- 7/8	2-31/64	15.7
4- 3/16	7-6134	3-1/4	6	5- 3/8	2-33/64	19.7
4- 1/4	7-6136	3-1/4	6	5- 3/8	2- 9/16	19.2
4- 5/16	7-6138	3-1/4	6	5- 3/8	2-39/64	18.7
4- 3/8	7-6140	3-1/4	6	5- 3/8	2-41/64	18.2
4- 1/2	7-6142	3-1/4	6	5- 3/8	2-11/16	17.7
4- 5/8	7-6144	3-1/4	6- 1/4	5- 3/4	2-47/64	21.7
4- 3/4	7-6146	3-1/4	6- 1/2	5- 3/4	2-49/64	24.4
4- 7/8	7-6148	3-1/4	6- 1/2	5- 3/4	2-13/16	23.8
5	7-6150	3-1/4	6- 3/4	5- 3/4	2-57/64	26.0
5- 1/8	7-6152	3-1/4	7	6- 1/4	2-63/64	31.1
5- 3/8	7-6154	3-1/4	7- 1/4	6- 1/4	3- 1/16	33.7
5- 1/2	7-6156	3-1/4	7- 3/4	6- 1/2	3- 5/16	39.5
5- 3/4	7-6158	3-1/4	8- 1/4	6- 1/2	3- 9/16	44.2

For Retainer Pins and "O" Rings to fit above Sockets, Adapters and Extensions, see page 92.

Example of Order Nomenclature: "17-654 SOCKET"

Nominal Opening A	No.	Nominal Dimensions				Weight Each, Lbs.
		Drive End Diam. B	Nose Diam. C	Overall Lgth. E	Opening Depth F	

BOLT CLEARANCE LENGTH SINGLE HEXAGON OPENINGS FEDERAL SPEC: GGG-W-660A, TYPE I, CLASS 1, STYLE B

7/8	17-628	2	1- 7/16	3	39/64	1.8
15/16	17-630	2	1-19/32	3	23/32	1.8
1	17-632	2	1- 3/4	3	35/64	1.8
1- 1/16	17-634	2	1- 3/4	3	13/16	1.8
1- 1/8	17-636	2-1/8	1-13/16	3	13/16	2.
1- 3/16	17-638	2-1/8	1- 7/8	3	7/8	2.3
1- 1/4	17-640	2-1/8	2	3	29/32	1.9
1- 5/16	17-642	2-1/8	2- 1/16	3-1/2	49/64	2.1
1- 3/8	17-644	2-1/4	2- 1/8	3-1/2	49/64	2.5
1- 7/16	17-646	2-1/4	2- 1/4	3-1/2	49/64	2.5
*1- 1/2	17-648	2-1/4	2- 5/16	3-1/2	7/8	2.5
1- 9/16	17-650	2-1/4	2- 3/8	3-1/2	7/8	2.6
1- 5/8	17-652	2-1/4	2- 7/16	3-1/2	7/8	2.8
1-11/16	17-654	2-1/4	2- 9/16	3-5/8	1	3.
1- 3/4	17-656	2-1/4	2- 5/8	3-5/8	1	3.
1-13/16	17-658	2-1/4	2- 3/4	3-5/8	1	3.4
1- 7/8	17-660	2-1/4	2- 3/4	3-7/8	1- 3/32	3.5
1-15/16	17-662	2-1/4	2- 7/8	3-7/8	1- 3/32	3.9
2	17-664	2-1/4	3	3-7/8	1- 3/32	4.1
2- 1/16	17-666	2-1/4	3	4-1/8	1-13/64	4.
2- 1/8	17-668	2-3/8	3- 1/8	4-1/8	1-13/64	4.8
2- 3/16	17-670	2-3/8	3- 1/4	4-1/8	1-13/64	5.
2- 1/4	17-672	2-3/8	3- 1/4	4-3/8	1- 5/16	5.4
2- 5/16	17-674	2-3/8	3- 3/8	4-3/8	1- 5/16	5.8
2- 3/8	17-676	2-3/8	3- 1/2	4-3/8	1- 5/16	6.1
2- 7/16	17-678	3-1/4	3- 5/8	4-1/2	1-25/64	7.7
2- 1/2	17-680	3-1/4	3- 5/8	4-1/2	1-25/64	7.5

Sockets marked* are Non-Stock, available on special order only.

*2- 9/16	17-682	3-1/4	3- 3/4	4- 1/2	1-25/64	8.0
2- 5/8	17-684	3-1/4	3- 3/4	4-11/16	1- 1/2	8.0
*2-11/16	17-686	3-1/4	3- 7/8	4-11/16	1- 1/2	8.5
2- 3/4	17-688	3-1/4	3- 7/8	4-11/16	1- 1/2	8.2
*2-13/16	17-690	3-1/4	4	4- 7/8	1-39/64	7.7
2- 7/8	17-692	3-1/4	4	4- 7/8	1-39/64	7.4
2-15/16	17-694	3-1/4	4- 1/4	4- 7/8	1-39/64	10.2
3	17-696	3-1/4	4- 1/4	5- 1/8	1-23/32	10.4
3- 1/8	17-6100	3-1/4	4- 1/2	5- 1/8	1-23/32	11.7
3- 1/4	17-6104	3-1/4	4- 1/2	5- 1/8	1-23/32	11.0
3- 3/8	17-6108	3-1/4	4- 3/4	5- 1/2	1-59/64	13.2
3- 1/2	17-6112	3-1/4	4- 3/4	5- 1/2	1-59/64	12.4
*3- 5/8	17-6116	3-1/4	5	5- 1/2	2- 9/64	13.9
*3-11/16	17-6118	3-1/4	5- 1/4	5- 9/16	2- 3/16	15.7
3- 3/4	17-6120	3-1/4	5- 1/4	5- 9/16	2-15/64	15.2
*3-13/16	17-6122	3-1/4	5- 1/4	5- 9/16	2-17/64	14.8
3- 7/8	17-6124	3-1/4	5- 1/4	5- 9/16	2- 5/16	15.6
*3-15/16	17-6126	3-1/4	5- 1/2	5- 7/8	2-23/64	17.9
4	17-6128	3-1/4	5- 1/2	5- 7/8	2-25/64	17.3
*4- 1/16	17-6130	3-1/4	5- 3/4	5- 7/8	2- 7/16	19.9
*4- 1/8	17-6132	3-1/4	5- 3/4	5- 7/8	2-31/64	21.5
*4- 3/16	17-6134	3-1/4	6	6- 1/2	2-33/64	24.3
*4- 1/4	17-6136	3-1/4	6	6- 1/2	2- 9/16	23.7
*4- 5/16	17-6138	3-1/4	6	6- 1/2	2-39/64	23.1
*4- 3/8	17-6140	3-1/4	6	6- 1/2	2-41/64	22.4
*4- 1/2	17-6142	3-1/4	6	6- 1/2	2-11/16	21.8
*4- 5/8	17-6144	3-1/4	6- 1/4	7	2-47/64	26.8
*4- 3/4	17-6146	3-1/4	6- 1/2	7- 1/8	2-49/64	30.9
*4- 7/8	17-6148	3-1/4	6- 1/2	7- 1/8	2-13/16	30.1
5	17-6150	3-1/4	6- 3/4	7- 1/8	2-57/64	33.0
*5- 1/8	17-6152	3-1/4	7	7- 5/8	2-63/64	38.7
*5- 3/8	17-6154	3-1/4	7- 1/4	7- 3/4	3- 1/16	42.9
*5- 1/2	17-6156	3-1/4	7- 3/4	8	3- 5/16	50.0
*5- 3/4	17-6158	3-1/4	8- 1/4	8	3- 9/16	55.8

STANDARD LENGTH SQUARE (4 PT.) NOT SHOWN

FEDERAL SPEC: GGG-W-660A, TYPE I, CLASS 3, STYLE A (7-426 thru 7-436)

13/16	7-426	2	1-15/16	2- 1/4	1/2	1.3
7/8	7-428	2	2	2- 1/4	17/32	1.4
15/16	7-430	2-1/8	2-1/16	2- 1/4	1/2	1.6
1	7-432	2-1/8	2-1/8	2- 5/16	37/64	1.6
1- 1/16	7-434	2-1/8	2-1/8	2- 5/16	5/8	1.6
1- 1/8	7-436	2-1/4	2-1/4	2- 1/2	11/16	2.



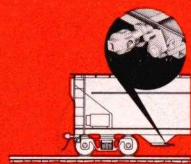
"7" SERIES-1 Inch SQUARE DRIVE-POWER DRIVE SOCKETS FOR ALL TYPES OF POWER WRENCHES

1"

TAPERED
SQ. PLUG
7/8"-1 1/2"



FOR 1" SQ. DR. RATCHETS



HOPPER CAR TOOL

No.	Overall Lgth.	Taper	Drive Size	Weight Ea., Lbs.
RR-1HC	7-1/2	7/8 to 1-1/2	1" Sq. Drive	5.1

Unique tapered design assures accurate fit, even in battered drive pinion openings of sliding gate type hopper cars. One inch square drive opening fits hand ratchets, power tools or torque multiplier applications. Industrial finish. Critical wear surfaces are specially heat-treated and hardened to turn the most stubborn drive pinion. See page 58 for torque multiplier application.



UNIVERSAL JOINT



ADAPTERS



EXTENSION

ADAPTERS, EXTENSION and UNIVERSAL JOINT

Male squares have thru Pin Holes

FEDERAL SPEC: GGG-W-660A, TYPE III, ADAPTER
GGG-W-660A, TYPE II, EXTENSION GGG-W-660A, TYPE IV, UNIV. JOINT

No.	Description	Square Female	Square Male	Length	Wgt. Ea., Lbs.
7-6	Adapter.....	1	3/4	3	1.8
7-8	Adapter.....	1	1-1/2	3-9/16	4.0
7-107	Extension.....	1	1	7	3.6
7-140	Universal Joint, O.D. 2-3/8", range 55°.....	1	1	4-3/8	2.9

"8" SERIES 1-1/2 Inch SQUARE DRIVE-POWER DRIVE SOCKETS FOR ALL TYPES OF POWER WRENCHES

1 1/2"



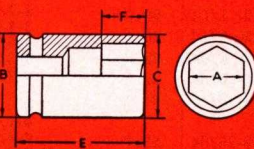
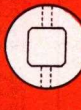
Nos. 8-642 to 8-660



No. 8-664



Nos. 8-668 to 8-6256



Nos. 18-664 to 18-6256



ADAPTER

Nominal Opening A	No.	Nominal Dimensions				Weight Each, Lbs.
		Drive End Diam. B	Nose Diam. C	Overall Lgth. E	Opening Depth F	

STANDARD LENGTH-SINGLE HEXAGON OPENINGS Industrial Finish

FEDERAL SPEC: GGG-W-660A, TYPE I, CLASS 1, STYLE A

1- 5/16	8-642	3-1/4	2-1/2	3-1/8	49/64	4.
1- 3/8	8-644	3-1/4	2-3/4	3-1/8	49/64	4.3
1- 7/16	8-646	3-1/4	2-3/4	3-1/8	49/64	4.4
1- 1/2	8-648	3-1/4	2-7/8	3-1/8	7/8	4.4
1- 5/8	8-652	3-1/4	3	3-1/8	7/8	4.5
1-11/16	8-654	3-1/4	3	3-1/8	1	4.4
1-13/16	8-658	3-1/4	3-1/8	3-1/4	1	5.
1- 7/8	8-660	3-1/4	3-1/8	3-1/4	1- 3/32	4.4
2	8-664	3-1/4	3-1/4	3-3/4	1- 3/32	5.6
2- 1/16	8-666	3-1/4	3-1/2	3-7/8	1-13/64	6.6
2- 1/8	8-668	3-1/4	3-1/2	3-7/8	1-13/64	6.6
2- 3/16	8-670	3-1/4	3-1/2	3-7/8	1-13/64	6.6
2- 1/4	8-672	3-1/4	3-3/4	4	1- 5/16	6.6
2- 3/8	8-676	3-1/4	3-7/8	4-1/8	1- 5/16	7.6
2- 7/16	8-678	3-1/4	3-7/8	4-1/8	1-25/64	7.
2- 9/16	8-682	3-1/4	4	4-1/4	1-25/64	7.9
2- 5/8	8-684	3-1/4	4-1/8	4-1/4	1- 1/2	8.3
2- 3/4	8-688	3-1/4	4-1/4	4-3/8	1- 1/2	8.8
2-15/16	8-694	3-1/4	4-1/2	4-1/2	1-39/64	9.5
3	8-696	3-1/4	4-1/2	4-5/8	1-23/32	9.5
3- 1/8	8-6100	3-1/4	4-3/4	4-5/8	1-23/32	11.4
3- 3/8	8-6108	3-1/4	5	4-5/8	1-59/64	11.
3- 1/2	8-6112	3-1/4	5-1/8	4-5/8	1-59/64	12.4
3- 5/8	8-6116	3-1/4	5-1/2	5-1/16	2- 9/64	16.2
3- 3/4	8-6120	3-1/4	5-1/2	5-1/16	2-15/64	15.5
3- 7/8	8-6124	3-1/4	5-1/2	5-1/16	2- 5/16	14.7
4	8-6128	3-1/4	5-3/4	5-3/8	2-25/64	17.2
4- 1/8	8-6132	3-1/4	5-3/4	5-3/8	2-31/64	16.4
4- 1/4	8-6136	3-1/4	6	5-7/8	2- 9/16	20.0

Sockets marked * are Non-Stock, available on special order only.

*4-3/8	8-6140	3-1/4	6	5-7/8	2-41/64	19.0
4-1/2	8-6144	3-1/4	6-1/2	6-1/4	2-47/64	25.7
4-5/8	8-6148	3-1/4	6-1/2	6-1/4	2-13/16	24.5
*4-3/4	8-6152	3-1/4	6-3/4	6-1/4	2-57/64	26.7
4-7/8	8-6156	3-1/4	7	6-3/4	2-63/64	31.8
5	8-6160	3-1/4	7-1/4	6-3/4	3- 1/16	34.5
5-3/8	8-6172	3-1/4	7-3/4	7	3- 5/16	40.2
*5-3/4	8-6184	3-1/4	8-1/4	7	3- 9/16	44.9
*6-1/8	8-6196	3-1/4	8-3/4	7-1/4	3-13/16	52.0
*6-1/2	8-6208	3-1/4	9-1/4	7-1/2	4- 1/16	59.7
*6-7/8	8-6220	3-1/4	9-3/4	7-3/4	4- 5/16	68.0
*7-1/4	8-6232	3-1/4	10	8	4- 9/16	70.5
*7-5/8	8-6244	3-1/4	10-3/4	8-1/4	4-13/16	87.7
*8	8-6256	3-1/4	11	8-3/8	5- 1/16	88.8

For Retainer Pins and "O" Rings to fit above Sockets, Adapters and Extensions, see page 92.

Nominal Opening A	No.	Nominal Dimensions				Weight Each, Lbs.
		Drive End Diam. B	Nose Diam. C	Overall Lgth. E	Opening Depth F	

BOLT CLEARANCE LENGTH-SINGLE HEXAGON OPENINGS Industrial Finish

Sockets marked * are Non-Stock, available on special order only.

2	18-664	3-1/4	3-1/4	6-1/8	1- 3/32	9.6
*2- 1/16	18-666	3-1/4	3-1/2	6-1/8	1-13/64	11.0
*2- 1/8	18-668	3-1/4	3-1/2	6-1/8	1-13/64	10.8
*2- 1/4	18-670	3-1/4	3-1/2	6-1/8	1-13/64	10.5
*2- 3/8	18-672	3-1/4	3-3/4	6-1/8	1- 5/16	12.0
*2- 7/16	18-676	3-1/4	3-7/8	6-1/8	1- 5/16	12.4
*2- 9/16	18-678	3-1/4	3-7/8	6-1/8	1-25/64	12.1
*2- 5/8	18-682	3-1/4	4	6-3/8	1-25/64	13.0
*2- 3/4	18-684	3-1/4	4-1/4	6-3/8	1- 1/2	13.7
*2-15/16	18-688	3-1/4	4-1/4	6-3/8	1- 1/2	14.1
3	18-694	3-1/4	4-1/2	6-7/8	1-39/64	16.6
*3- 1/8	18-696	3-1/4	4-1/2	6-7/8	1-23/32	16.2
*3- 3/8	18-6100	3-1/4	4-3/4	7-1/8	1-23/32	18.6
*3- 1/2	18-6108	3-1/4	5	7-1/8	1-59/64	20.7
*3- 5/8	18-6112	3-1/4	5-1/8	7-1/8	1-59/64	25.9
*3- 3/4	18-6116	3-1/4	5-1/2	7-5/8	2- 9/64	25.9
*3- 7/8	18-6120	3-1/4	5-1/2	7-5/8	2-15/64	24.6
*4	18-6124	3-1/4	5-1/2	7-5/8	2- 5/16	23.4
*4- 1/8	18-6128	3-1/4	5-3/4	8-1/4	2-25/64	26.7
*4- 1/4	18-6132	3-1/4	6	8-1/4	2-31/64	26.7
*4- 1/2	18-6136	3-1/4	6	8-1/2	2- 9/16	30.5
*4- 3/8	18-6140	3-1/4	6	8-1/2	2-41/64	28.8
*4- 1/2	18-6144	3-1/4	6-1/2	8-3/4	2-47/64	37.9
*4- 5/8	18-6148	3-1/4	6-1/2	8-3/4	2-13/16	36.1
*4- 3/4	18-6152	3-1/4	6-3/4	8-7/8	2-57/64	40.1
*4- 7/8	18-6156	3-1/4	7	9	2-63/64	44.4
*5	18-6160	3-1/4	7-1/4	9-1/8	3- 1/16	49.0
*5- 3/8	18-6172	3-1/4	7-3/4	9-3/8	3- 5/16	56.7
*5- 3/4	18-6184	3-1/4	8-1/4	9-5/8	3- 9/16	56.3
*6- 1/8	18-6196	3-1/4	8-3/4	9-7/8	3-13/16	74.8
*6- 1/2	18-6208	3-1/4	9-1/4	10-1/8	4- 1/16	85.2
*6- 7/8	18-6220	3-1/4	9-3/4	10-1/4	4- 5/16	94.6
*7- 1/4	18-6232	3-1/4	10	10-3/8	4- 9/16	95.6
*7- 5/8	18-6244	3-1/4	10-3/4	10-5/8	4-13/16	117.5
*8	18-6256	3-1/4	11	10-7/8	5- 1/16	120.0

No.	Description	Square Female	Square Male	Length	Wgt. Ea., Lbs.
8-7	Adapter.....	1-1/2	*1	4	9.0

*Male square has thru pin hole.

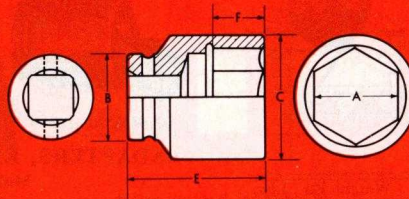
2 1/2"

"9" SERIES-2-1/2 Inch SQUARE DRIVE-POWER DRIVE SOCKETS

FOR ALL TYPES OF POWER WRENCHES



Standard Length



Bolt Clearance Length

Example of Order Nomenclature: "9-6172 SOCKET"

Nominal Opening A	No.	Nominal Dimensions				Weight Each, Lbs. Approx.
		Diam. Drive End B	Diam. Nose C	Length Overall E	Depth Opening F	

STANDARD LENGTH
SINGLE HEXAGON OPENINGS
Industrial Black Finish

Sockets marked * are Non-Stock, available on special order only.

*3-7/16	9-6110	5	5-3/8	5- 3/8	2- 1/64	20.0
3-1/2	9-6112	5	5-3/8	5- 3/8	2- 1/16	20.1
*3-5/8	9-6116	5	5-5/8	5-13/16	2- 9/64	23.2
3-3/4	9-6120	5	5-5/8	5-13/16	2-15/64	22.5
3-7/8	9-6124	5	5-5/8	5-13/16	2- 5/16	21.7
4	9-6128	5	6	6- 1/8	2-25/64	25.7
4-1/8	9-6132	5	6	6- 1/8	2-31/64	24.9
4-1/4	9-6136	5	6	6- 5/8	2- 9/16	26.0
*4-3/8	9-6140	5	6-1/4	6- 5/8	2-41/64	27.8
4-1/2	9-6144	5	6-1/2	7	2-47/64	31.7
4-5/8	9-6148	5	6-1/2	7	2-13/16	30.5
*4-3/4	9-6152	5	6-3/4	7	2-57/64	32.8
*4-7/8	9-6156	5	7	7- 1/2	2-63/64	37.8
*5	9-6160	5	7-1/4	7- 1/2	3- 1/16	40.6
5-3/8	9-6172	5	8	7- 3/4	3- 5/16	51.3
*5-3/4	9-6184	5	8-5/8	7- 3/4	3- 9/16	58.6
*6-1/8	9-6196	5	9	8	3-13/16	63.7
*6-1/2	9-6208	5	9-1/2	8- 1/4	4- 1/16	72.2
*6-7/8	9-6220	5	10	8- 1/2	4- 5/16	79.6
*7-1/4	9-6232	5	10-1/4	8- 3/4	4- 9/16	84.0
*7-5/8	9-6244	5	11-1/4	9	4-13/16	110.3
*8	9-6256	5	11-1/4	9- 1/8	5- 1/16	103.3

Example of Order Nomenclature: "19-6128 SOCKET"

Nominal Opening A	No.	Nominal Dimensions				Weight Each, Lbs. Approx.
		Diam. Drive End B	Diam. Nose C	Length Overall E	Depth Opening F	

BOLT CLEARANCE LENGTH
SINGLE HEXAGON OPENINGS
Industrial Black Finish

The following sockets are Non-Stock, available on special order only.

3-7/16	19-6110	5	5-3/8	7- 5/8	2- 1/64	29.0
3-1/2	19-6112	5	5-3/8	7- 5/8	2- 1/16	28.5
3-5/8	19-6116	5	5-5/8	8- 1/16	2- 9/64	33.1
3-3/4	19-6120	5	5-5/8	8- 1/16	2-15/64	31.3
3-7/8	19-6124	5	5-5/8	8- 1/16	2- 5/16	30.1
4	19-6128	5	6	8- 3/8	2-25/64	35.8
4-1/8	19-6132	5	6	8- 3/8	2-31/64	34.4
4-1/4	19-6136	5	6-1/4	8- 7/8	2- 9/16	35.0
4-3/8	19-6140	5	6-1/4	8- 7/8	2-41/64	37.9
4-1/2	19-6144	5	6-1/2	9- 1/4	2-47/64	42.7
4-5/8	19-6148	5	6-1/2	9- 1/4	2-13/16	40.7
4-3/4	19-6152	5	6-3/4	9- 1/4	2-57/64	44.3
4-7/8	19-6156	5	7	9- 3/4	2-63/64	50.4
5	19-6160	5	7-1/4	9- 3/4	3- 1/16	54.5

RETAINER PINS and "O" RINGS

FOR 3/4", 1", 1-1/2", 2-1/2" SQUARE DRIVES



Example of Order Nomenclature: "6-2B PIN, 7-1C RING"

"O" Rings are specially designed for resistance to oil and grease. Retainer Pins are made of selected steel—oil finished. Retainer Pins and "O" Rings are packaged separately, 24 of each to a box.

Square Drive Size	Socket and Extension Nos.	Retainer Pins			"O" Type Rings	
		No.	Diam.	Length	No.	Diam.
3/4"	6-620 thru 6-638	6-2B	3/16	1-1/4	6-1A	1-7/16
	6-640 thru 6-654	6-2C	3/16	1-1/2	6-1A	1-7/16
	6-620 thru 6-626	6-2B	3/16	1-1/4	6-1A	1-7/16
	6-826 thru 6-830	6-2B	3/16	1-1/4	6-1A	1-7/16
	6-832 thru 6-846	6-2C	3/16	1-1/2	6-1A	1-7/16
	16-620 thru 16-638	6-2B	3/16	1-1/4	6-1A	1-7/16
	16-640 thru 16-652	6-2C	3/16	1-1/2	6-1A	1-7/16
	Universal Joint	6-2C	3/16	1-1/2	6-1A	1-7/16
	All Adapters	6-2C	3/16	1-1/2	6-1A	1-7/16
	All Extensions	6-2C	3/16	1-1/2	6-1A	1-7/16
	7-624 thru 7-6116	7-2D	3/16	1-7/8	7-1B	1-3/4
	7-6118 thru 7-6184	7-2F	3/16	2-7/8	7-1C	2-7/8
1"	7-426 thru 7-888	7-2D	3/16	1-7/8	7-1B	1-3/4
	17-628 thru 17-676	7-2D	3/16	1-7/8	7-1B	1-3/4
	17-678 thru 17-6184	7-2F	3/16	2-7/8	7-1C	2-7/8
	Universal Joint	7-2D	3/16	1-7/8	7-1B	1-3/4
	Adapter	7-2D	3/16	1-7/8	7-1B	1-3/4
	Extensions	7-2D	3/16	1-7/8	7-1B	1-3/4
1-1/2"	Fit all sizes	8-2E	1/4	2-7/8	8-1C	2-7/8
2-1/2"	Fit all sizes	9-2G	5/16	4-1/2	9-1D	4-1/8

For Retainer Pins and "O" Rings to fit above Sockets, see table above.

REPLACEMENT PLUNGER PARTS

FOR 1/4", 3/8", 1/2", 5/8" SQUARE DRIVES



Pin Plunger



Spring



Plug

Sets consisting of a plunger, spring and brass plug are packed 24 sets to a box.

Example of Order Nomenclature: "2-1P SET"

Type Plunger	Set Number for Square Drive Size			
	1/4"	3/8"	1/2"	5/8"
Pin	0-1P	2-1P	4-1P	5-1P

MISCELLANEOUS

HAND TOOLS

**For technical information
about these products**

Ask for Product Information Sheet A-215 on Soft Face Hammers containing handy selection chart. Also A-216 on Flange-Jacks containing valuable information on servicing various classes of pipe, types of flange joints and facings.



Turning fasteners with pliers rounds their corners, setting up an unsafe condition. Use pliers for gripping irregular shapes. Make sure cutting tool edges are kept sharp to avoid slippage and possible injury.

COMBINATION SLIP-JOINT PLIERS



Forged from selected steel, fully polished, chrome-plated. Serrated jaws, shear-type wire cutter, two jaw positions.

FEDERAL SPEC: GGG-P-00471D-1, TYPE II, CLASS 2, STYLE A

Plain Handles	Length	Wgt. Ea., Lbs.
PL-5	5	.27
PL-6	6	.44
PL-8	8	.53
PL-10	10	.88

THIN NOSE SLIP-JOINT PLIERS



Slim noses to reach where clearance is limited. Serrated jaws, shear-type cutter, two jaw positions. Chrome-plated.

FEDERAL SPEC: GGG-P-00471D-1, TYPE II, CLASS 2, STYLE B

Plain Handles	Length	Wgt. Ea., Lbs.
PL-15	5	.25
PL-16	6	.36
PL-18	8	.60

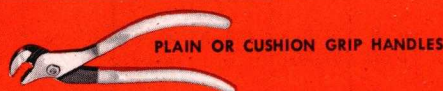
SLIP-JOINT SIDE CUTTING PLIERS



Flat serrated jaws at nose for gripping. Keen side cutters and a flush head rivet on one side. Yellow cushion grips.

Plain Handles	Cushion Grips	Length	Wgt. Ea., Lbs.
PL-370	PL-370C	7-1/2	.53

MIDGET SUPERJOINT PLIERS



Efficient for wiring, panel, switchboard, radio, and other delicate work. Cushion grips are yellow vinyl. Serrated jaws.

FEDERAL SPEC: GGG-P-00471D-1, TYPE II, CLASS 1, STYLE A

Plain Handles	Cushion Grips	Length	Wgt. Ea., Lbs.
PL-1519	PL-1519C	5	.13

UTILITY SUPERJOINT PLIERS

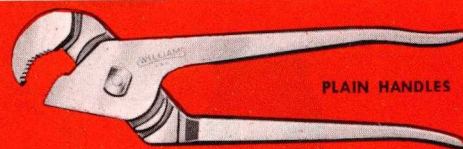


Very efficient for general service. Superjoint is designed to hold jaws parallel at most important openings. Drop-forged from selected steel. Cushion grips are yellow vinyl. Serrated jaws.

FEDERAL SPEC: GGG-00471D-1, TYPE II, CLASS 1, STYLE A

Plain Handles	Cushion Grips	Length	Wgt. Ea., Lbs.
PL-1520	PL-1520C	10	.75

HEAVY DUTY SUPERJOINT PLIERS



Heavy duty construction. Superjoint is designed to hold jaws parallel at most important opening. Serrated jaws.

FEDERAL SPEC: GGG-P-00471D-1, TYPE II, CLASS 1, STYLE A

Plain Handles	Length	Wgt. Ea., Lbs.
PL-1521A	10	1.

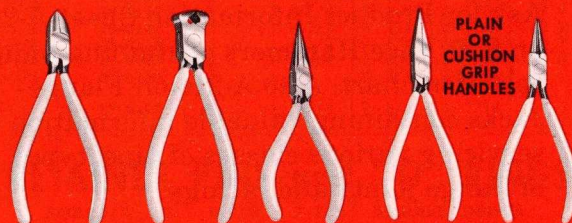
EXTRA HEAVY DUTY SUPERJOINT PLIERS



These unusually rugged, drop-forged pliers have seven adjustment positions with a maximum opening of 2-7/8".

Cushion Grip Handles	Length	Wgt. Ea., Lbs.
PL-1522C	14	1.75

MIDGET ELECTRONIC PLIERS



DIAGONAL CUTTING

END CUTTING

CHAIN NOSE

SHORT NOSE DUCKBILL

ROUND NOSE

Plain Handles	Cushion Grips	Length	Wgt. Ea., Lbs.
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MIDGET DIAGONAL CUTTING PLIERS

Drop-forged, selected steel. Cushion grips are yellow vinyl.

FEDERAL SPEC: GGG-00468, TYPE I, CLASS 1

Plain Handles	Cushion Grips	Length	Wgt. Ea., Lbs.
PLM-1	PLM-1C	4-1/4	.13
.....	PLM-1CS with Spring	4-1/4	.13

MIDGET END CUTTING NIPPERS

High leverage, semi-flush cutting edges.

FEDERAL SPEC: GGG-N-350A-4, TYPE I, CLASS 2, STYLE A

Plain Handles	Cushion Grips	Length	Wgt. Ea., Lbs.
PLM-2	PLM-2C	4-1/2	.17

MIDGET CHAIN NOSE PLIERS

Smooth, slender jaws taper to a needle point.

FEDERAL SPEC: GGG-P-00471D-1, TYPE XI, CLASS 1, STYLE B

Plain Handles	Cushion Grips	Length	Wgt. Ea., Lbs.
PLM-3	PLM-3C	4-1/2	.15

MIDGET SHORT NOSE DUCKBILL PLIERS

Flat, wide jaws for strong gripping. Smooth jaws.

FEDERAL SPEC: GGG-P-00471D-1, TYPE V, CLASS 2

Plain Handles	Cushion Grips	Length	Wgt. Ea., Lbs.
PLM-4	PLM-4C	4-1/2	.15

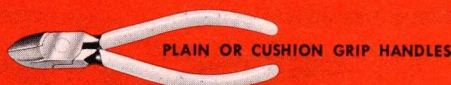
MIDGET ROUND NOSE PLIERS

Tapered, round jaws form accurate loops.

FEDERAL SPEC: GGG-P-00471D-1, TYPE X

Plain Handles	Cushion Grips	Length	Wgt. Ea., Lbs.
PLM-5	PLM-5C	4-3/4	.15

DIAGONAL CUTTING PLIERS



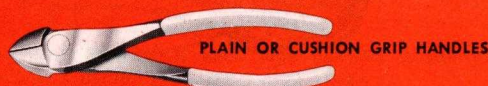
PLAIN OR CUSHION GRIP HANDLES

Rugged, semi-flush cutting edges. Excellent leverage, thin jaws for limited places. Drop-forged. Cushion grips are yellow vinyl.

FEDERAL SPEC: GGG-P-00468, TYPE I, CLASS 1

Plain Handles	Cushion Grips	Length	Wgt. Ea., Lbs.
PLM-1	PLM-1C	4-1/4	.13
PL-44	PL-44C	4-1/2	.19
PL-45	PL-45C	5	.25
PL-46	PL-46C	6	.40
PL-47	PL-47C	7-1/4	.52

HIGH LEVERAGE DIAG. CUTTING PLIERS



PLAIN OR CUSHION GRIP HANDLES

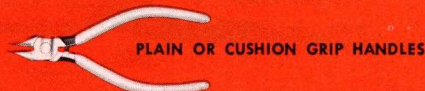
Joint close to short jaws and long handles offer added leverage and easier cutting. Cushion grips are yellow vinyl.

FEDERAL SPEC: GGG-P-00468, TYPE III

Plain Handles	Cushion Grips	Length	Wgt. Ea., Lbs.
PL-57	PL-57C	7	.50

DIAGONAL FLUSH CUTTING PLIERS

WITH
OR WITHOUT
SPRING



PLAIN OR CUSHION GRIP HANDLES

Narrow, pointed nose, semi-flush edges for close cutting. Lightweight, easy-to-use. Coil spring keeps jaws open.

Plain Handles	Cushion Grip Handles	Length	Wgt. Ea., Lbs.
PL-40	PL-40CS with Spring	5	.25

END CUTTING NIPPERS



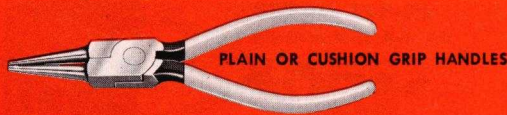
PLAIN HANDLES

These drop-forged end nippers have carefully matched, sharp cutting edges for semi-flush cuts. Ample throat clearance.

FEDERAL SPEC: GGG-N-350A-4, TYPE I, CLASS 2, STYLE A

Plain Handles	Length	Wgt. Ea., Lbs.
PLM-2	4-1/2	.17
PL-166	6-1/2	.52
PL-167	7-1/2	.71

ROUND NOSE PLIERS



PLAIN OR CUSHION GRIP HANDLES

Both jaws rounded and tapered to accurately form loops and rings of wire and flat stock.

FEDERAL SPEC: GGG-P-00471D-1, TYPE X

Plain Handles	Cushion Grips	Length	Wgt. Ea., Lbs.
PLM-5	PLM-5C	4-3/4	.15

SHORT NOSE DUCKBILL PLIERS



CUSHION GRIP HANDLES

Drop-forged. PLM-4C has flat, wide, smooth jaws.

Cushion grips are yellow vinyl.

Example of Order Nomenclature: "PLM-4C PLIERS"

Cushion Grip Handles	Length	Wgt. Ea., Lbs.
PLM-4C	4-1/2	.15

DUCKBILL PLIERS

WITH
SIDE
CUTTERS



PLAIN HANDLES

Long reach, squared jaws 2-3/16" inside length. Tips are checker-milled for firm grip. Drop-forged, polished jaws.

FEDERAL SPEC: GGG-P-00471D-1, TYPE V, CLASS 3, STYLE B

Plain Handles	Length	Wgt. Ea., Lbs.
PL-143	6-1/4	.29

DUCKBILL PLIERS



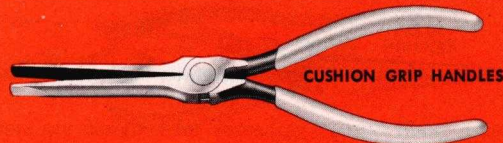
PLAIN OR CUSHION GRIP HANDLES

Wide, thin jaws 2-1/4" inside length. Grips are yellow vinyl.

FEDERAL SPEC: GGG-P-00471D-1, TYPE XV, CLASS 1

Plain Handles	Cushion Grips	Length	Wgt. Ea., Lbs.
PL-146	PL-146C	6-1/2	.33

LONG THIN DUCKBILL PLIERS



CUSHION GRIP HANDLES

Smooth jaws, 2-5/8" inside length, are polished to very thin edges for reaching into tight places. Grips are yellow vinyl.

Cushion Grip Handles	Length	Wgt. Ea., Lbs.
PL-144C	7-1/4	.33

HIGH LEVERAGE SHORT DUCKBILL PLIERS



PLAIN OR CUSHION GRIP HANDLES

Flat, checker-milled jaw tips for more positive gripping. Drop-forged, polished heads. Cushion grips are yellow vinyl.

FEDERAL SPEC: GGG-P-00471D-1, TYPE XV, CLASS 2

Plain Handles	Cushion Grips	Length	Wgt. Ea., Lbs.
PL-149	PL-149C	8	.42

SHORT CHAIN NOSE PLIERS



WITH SIDE CUTTERS

Short jaws with checker-milled tips provide positive grip. Drop-forged, polished heads. Cushion grips are yellow vinyl.
FEDERAL SPEC: GGG-P-00471D-1, TYPE XI, CLASS 2, STYLE A

Plain Handles	Cushion Grips	Length	Wgt. Ea., Lbs.
PL-95	PL-95C	5	.23

WITHOUT SIDE CUTTERS

Smooth, slender jaws taper to a needle point. Drop-forged, polished heads. Cushion grips are yellow vinyl.
FEDERAL SPEC: GGG-P-00471D-1, TYPE XI, CLASS 1, STYLE B

Plain Handles	Cushion Grips	Length	Wgt. Ea., Lbs.
PLM-3	PLM-3C	4-1/2	.15

LONG CHAIN NOSE PLIERS



WITH SIDE CUTTERS

Slender jaws, 2-7/32" long inside, taper to 3/32". Tips are checker-milled. Drop-forged, polished heads. Yellow grips.
FEDERAL SPEC: GGG-P-00471D-1, TYPE XI, CLASS 1, STYLE A

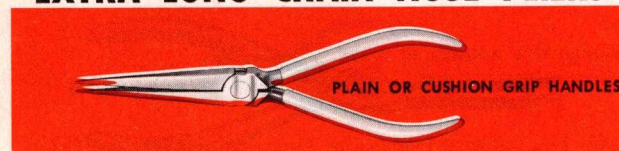
Plain Handles	Cushion Grips	Length	Wgt. Ea., Lbs.
PL-76	PL-76C	6-1/2	.29

WITHOUT SIDE CUTTERS

Slender jaws, 2-3/16" long inside, taper to 3/32". Tips are checker-milled. Drop-forged, polished heads. Yellow grips.
FEDERAL SPEC: GGG-P-00471D-1, TYPE XI, CLASS 1, STYLE B

Plain Handles	Cushion Grips	Length	Wgt. Ea., Lbs.
PL-75	PL-75C	6-1/2	.29

EXTRA LONG CHAIN NOSE PLIERS



Slender jaws, 2-21/32" long inside, taper to 1/8". Tips are checker-milled. Drop-forged, polished heads. Yellow grips.
FEDERAL SPEC: GGG-P-00471D-1, TYPE XI, CLASS 1, STYLE B

Plain Handles	Cushion Grips	Length	Wgt. Ea., Lbs.
PL-78	PL-78C	7	.35

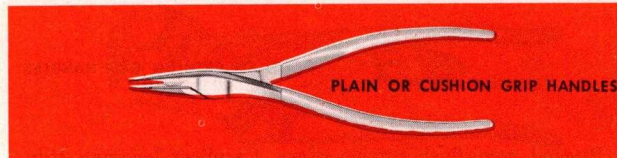
EXTRA LONG CHAIN NOSE PLIERS



Slender jaws, 2-17/32" long inside, taper to 1/8". Tips are checker-milled. Drop-forged, polished heads. Yellow grips.
FEDERAL SPEC: GGG-P-00471D-1, TYPE XI, CLASS 1, STYLE A

Plain Handles	Cushion Grips	Length	Wgt. Ea., Lbs.
PL-77	PL-77C	7	.35

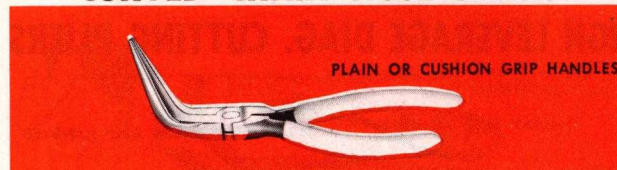
SHORT CHAIN NOSE HI-LEVERAGE PLIERS



Short, slender jaws with checker-milled 1/8" tips. Long handles for powerful grip. Cushion grips are yellow vinyl.
FEDERAL SPEC: GGG-P-00471D-1, TYPE XI, CLASS 2, STYLE B

Plain Handles	Cushion Grips	Length	Wgt. Ea., Lbs.
PL-98	PL-98C	8	.40

CURVED CHAIN NOSE PLIERS



Sturdy, curved jaws have 1-1/2" reach tapered to 1/8". Tips are checker-milled. Cushion grips are yellow vinyl.
FEDERAL SPEC: GGG-P-00471D-1, TYPE XII, CLASS 1

Plain Handles	Cushion Grips	Length	Wgt. Ea., Lbs.
PL-126	PL-126C	5-1/2	.29

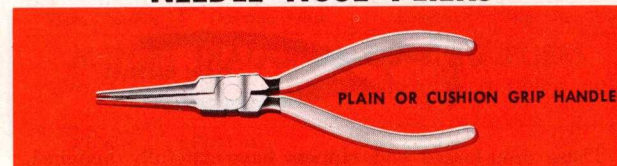
SHORT NEEDLE NOSE PLIERS



Serrated jaws, 15/16" long inside, taper to 1/32". Excellent for work on miniature parts. Drop-forged, polished heads. Spring holds jaws open until pressure is applied.

Plain Handles	Length	Wgt. Ea., Lbs.
PL-114CS	4-1/2	.10

NEEDLE NOSE PLIERS



Sturdy jaws, 1-7/8" long inside, taper to 5/64". Tips are checker-milled. These pliers have unusual gripping ability without distortion. Cushion grips are yellow vinyl.

Plain Handles	Cushion Grips	Length	Wgt. Ea., Lbs.
PL-74	PL-74C	7	.29

LONG NEEDLE NOSE PLIERS



Very slim jaws, 2-5/16" long inside, taper to 3/32". Tips are checker-milled. These pliers have excellent gripping ability without distortion. Cushion grips are yellow vinyl.

Plain Handles	Cushion Grips	Length	Wgt. Ea., Lbs.
PL-116	PL-116C	6	.17

CURVED LONG NEEDLE NOSE PLIERS



Sturdy, curved jaws have 1-1/2" reach tapered to 1/16". Tips are checker-milled. Cushion grips are yellow vinyl.

Plain Handles	Cushion Grips	Length	Wgt. Ea., Lbs.
PL-127	PL-127C	5	.20

ELECTRICIAN'S SIDE CUTTING PLIERS



Checker-milled jaws with keen side cutters. Insulation crusher built-in. Cushion grips are yellow vinyl.

FEDERAL SPEC: GGG-P-00471D-1, TYPE IX, CLASS 1, STYLE A AND B

Plain Handles	Cushion Grips	Length	Wgt. Ea., Lbs.
PL-203	PL-203C	6	.50
PL-204	PL-204C	7	.65
PL-205	PL-205C	8	.81

LINEMEN'S SIDE CUTTING PLIERS



Heavy duty, checker-milled jaws. Keen side cutters. Insulation crusher built-in. Drop-forged polished heads.

FEDERAL SPEC: GGG-P-00471D-1, TYPE IX, CLASS 1, STYLE A

Plain Handles	Length	Wgt. Ea., Lbs.
PL-206	6	.46
PL-207	7	.65
PL-208	8	.98

NEW ENGLAND HEAD LINEMEN'S PLIERS



Special offset rivet and longer handles give powerful leverage. Checker-milled jaws with keen side cutters and insulation crusher. Drop-forged, polished heads.

Plain Handles	Cushion Grips	Length	Wgt. Ea., Lbs.
PL-209	PL-209X	9	1.1

GENERAL SERVICE PLIERS SET



SET No. PLS-6R
6 Pliers in K-10 Roll Kit

SET No. PLS-6T
6 Tools Only
Weight, 2.6 lbs.

No.	Description	No.	Description
PL-46C	Diagonal Cutting Pliers	PL-370C	Slip-Joint Pliers
PL-76C	Long Chain Nose Pliers	PL-1519C	Midjet Superjoint Pliers
PL-218C	Cutter-Crimper Pliers	PL-1520C	Utility Superjoint Pliers

CUTTER-CRIMPER PLIERS



A multi-function tool that cuts bolts from 4-40 thru 10-24, strips wire from 22 thru 10 AWG, and crimps terminals to wire sizes 22 thru 10 AWG. Has pliers nose and cutter for copper. With yellow cushion grips.

Cushion Grips	Length	Wgt. Ea., Lbs.
PL-218C	8-1/4	.50

ANGLE NOSE BATTERY PLIERS



Offset jaws allow ample hand clearance of battery terminal work. Milled teeth assure positive grip.

FEDERAL SPEC: GGG-P-00471D-1, TYPE I

Plain Handles	Length	Wgt. Ea., Lbs.
PL-67	7	.50

FENCE PLIERS and STAPLE PULLER



For installing wire fence. Head has hammer on one jaw, starting and puller point on the other.

FEDERAL SPEC: GGG-P-00471D-1, TYPE XVI

Plain Handles	Length	Wgt. Ea., Lbs.
PL-190	10	1.4

LOCK RING PLIERS

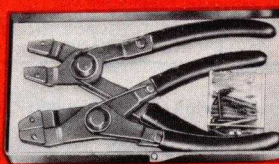


Pliers are designed for spreading "Horse Shoe" snap lock rings on brakes, transmissions, differentials, pulleys, etc.

FEDERAL SPEC: GGG-P-00480B-1, TYPE III, CLASS 2

Plain Handles	Length	Wgt. Ea., Lbs.
PL-1515	8	.38

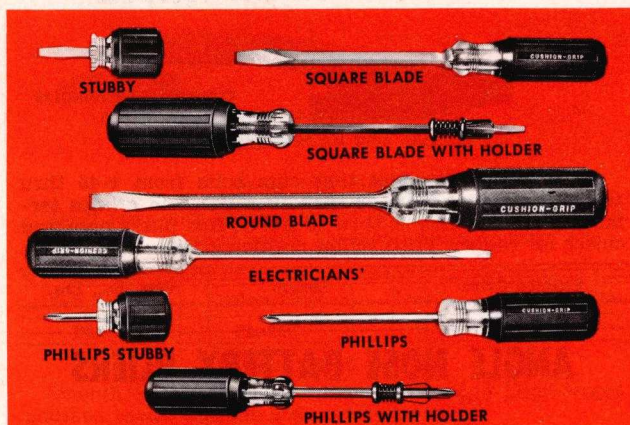
SNAP RING PLIERS SET



Three basic tip diameters handle a wide variety of external and internal rings for shafts 3/8" to 1-1/4". Interchangeable tips are heat-treated for long wear. Pliers have red vinyl handle grips. Set packed in plastic box.

Set No.	Contents			Wgt. Ea. Lbs.
	Pliers	Angle Tips	Straight Tips	
PL-1600C	1 PL-1600C-1 Intr. 1 PL-1600C-2 Extr.	2 Pr 90°x.035 Dia. 2 Pr 45°x.045 Dia.	2 Pr .045 Dia. 2 Pr .060 Dia.	.65
PL-1600C-3	Interchangeable Tip Set, 2 each as listed above			.05

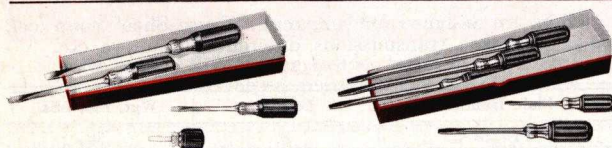
CUSHION GRIP SCREWDRIVERS



Cushion Grips are interlocked with the plastic handles through a tongue and groove or spline type design. They offer unusual, non-slip turning power. Alloy steel blades are chrome plated.

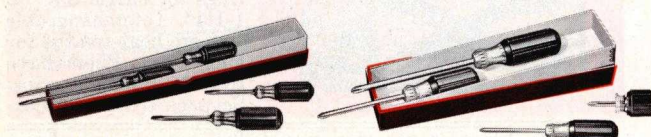
Example of Order Nomenclature: "DEG-46 SCREWDRIVER"
FEDERAL SPEC: GGG-S-121E

No.	Blade Length	Stock Size	Tip Width	Weight Each, Lbs.
MECHANICS' SQUARE BLADE				
DSG-4	4	1/4	9/32	.19
DSG-6	6	5/16	5/16	.38
DSG-8	8	3/8	3/8	.59
DSG-62	1-1/4	1/4	1/4	.14
MECHANICS' SQUARE BLADE WITH SCREW HOLDER				
DSHG-44	4	1/8	1/8	.07
DSHG-46	4	3/16	3/16	.15
DSHG-64	6	1/8	1/8	.10
DSHG-76	7	3/16	3/16	.21
MECHANICS' ROUND BLADE				
DRG-24	4	1/4	1/4	.19
DRG-26	6	5/16	5/16	.33
DRG-28	8	3/8	3/8	.53
DRG-30	10	3/8	3/8	.58
DRG-32	12	3/8	3/8	.66
ELECTRICIANS' ROUND BLADE				
DEG-43	3	3/16	3/16	.09
DEG-46	6	3/16	3/16	.14
DEG-48	8	3/16	3/16	.15
DEG-50	10	3/16	3/16	.17
PHILLIPS				
DPG-1	3	3/16	No. 1	.06
DPG-2	4	1/4	No. 2	.19
DPG-3	6	5/16	No. 3	.31
DPG-62	1-1/4	1/4	No. 2	.09
PHILLIPS WITH SCREW HOLDER				
DPHG-1	3	3/16	No. 1	.13
DPHG-2	4	1/4	No. 2	.19



SET No. DSGS-4
4 Screwdrivers in Cardboard Box
Weight, 1.7 lbs.
Contains one each Nos. DSG-4, DSG-6, DSG-8 and DSG-62.

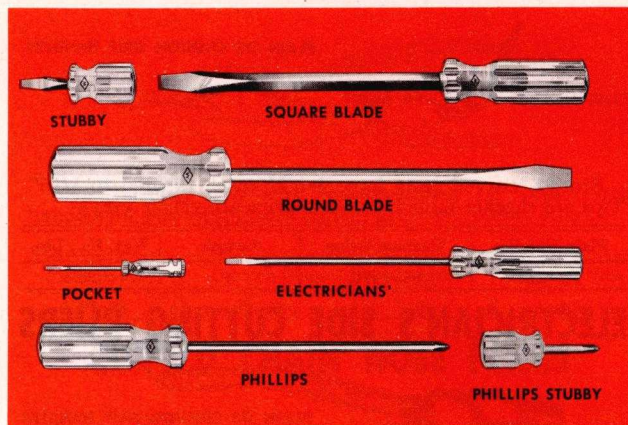
SET No. DRGS-5
5 Screwdrivers in Cardboard Box
Weight, 2.3 lbs.
Contains one each Nos. DRG-24, DRG-26, DRG-28, DRG-30 and DRG-32.



SET No. DEGS-6A
4 Screwdrivers in Cardboard Box
Weight, .6 lb.
Contains one each Nos. DEG-43, DEG-46, DEG-48 and DEG-50.

SET No. DPGS-4
4 Screwdrivers in Cardboard Box
Weight, .7 lb.
Contains one each Nos. DPG-1, DPG-2, DPG-3 and DPG-62.

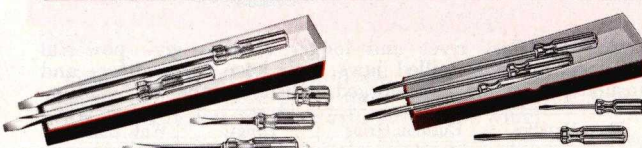
PLASTIC HANDLE SCREWDRIVERS



Fully tempered, polished alloy steel blades are solidly anchored in comfortable plastic handles. Blade point flats and edges are accurately ground and gauged for true fit.

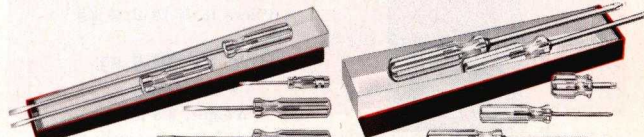
Example of Order Nomenclature: "DP-2 SCREWDRIVER"
FEDERAL SPEC: GGG-S-121E

No.	Blade Length	Stock Size	Tip Width	Weight Each, Lbs.
MECHANICS' SQUARE BLADE				
DS-4	4	1/4	5/16	.19
DS-6	6	5/16	5/16	.38
DS-6B	6	3/8	3/8	.50
DS-8	8	3/8	3/8	.59
DS-10	10	3/8	3/8	.65
DS-12	12	3/8	3/8	.75
DS-62	1-1/4	1/4	1/4	.14
MECHANICS' ROUND BLADE				
DR-24	4	1/4	1/4	.19
DR-26	6	5/16	5/16	.33
DR-28	8	3/8	3/8	.53
DR-30	10	3/8	3/8	.58
DR-32	12	3/8	3/8	.66
ELECTRICIANS' ROUND BLADE				
DE-43	3	3/16	3/16	.09
DE-46	6	3/16	3/16	.14
DE-48	8	3/16	3/16	.15
DE-50	10	3/16	3/16	.17
DE-52	2	1/8	1/8	.03
PHILLIPS				
DP-0	3	1/8	No. 0	.04
DP-1	3	3/16	No. 1	.06
DP-2	4	1/4	No. 2	.19
DP-3	6	5/16	No. 3	.31
DP-4	8	3/8	No. 4	.53
DP-62	1-1/4	1/4	No. 2	.09



SET No. DSS-1
5 Screwdrivers in Cardboard Box
Weight, 2 lbs.
Contains one each Nos. DS-4, DS-6, DS-8, DS-12 and DS-62.

SET No. DRS-4
5 Screwdrivers in Cardboard Box
Weight, 2.2 lbs.
Contains one each Nos. DR-24, DR-26, DR-28, DR-30 and DR-32.



SET No. DES-3A
5 Screwdrivers in Cardboard Box
Weight, .7 lb.
Contains one each Nos. DE-43, DE-46, DE-48, DE-50 and DE-52.

SET No. DPS-5
5 Screwdrivers in Cardboard Box
Weight, 1.1 lbs.
Contains one each Nos. DP-1, DP-2, DP-3, DP-4 and DP-62.

FEELER GAUGES

All blades are made from selected Swedish Steel. They are 12" long by 1/2" wide and are packaged 6 to an envelope.

FEDERAL SPEC: GGG-G-17B, TYPE VIII, CLASS 4, STYLE A

Blade Thickness	Number	Wgt., Lbs. Per 1/2 Doz.	Blade Thickness	Number	Wgt., Lbs. Per 1/2 Doz.
.0015	GL-0015	.021	.015	GL-015	.125
.002	GL-002	.025	.016	GL-016	.125
.003	GL-003	.033	.017	GL-017	.125
.004	GL-004	.044	.018	GL-018	.187
.005	GL-005	.056	.020	GL-020	.187
.006	GL-006	.062	.022	GL-022	.187
.007	GL-007	.062	.024	GL-024	.187
.008	GL-008	.062	.025	GL-025	.187
.009	GL-009	.062	.028	GL-028	.187
.010	GL-010	.062	.030	GL-030	.250
.011	GL-011	.062	.032	GL-032	.250
.012	GL-012	.062	.035	GL-035	.312
.013	GL-013	.125	.040	GL-040	.375
.014	GL-014	.125			

SCREW EXTRACTORS



For quick, easy removal of broken screws, bolts, studs or other threaded forms. A hole is first drilled into the broken stem and the correct size Williams Extractor is then inserted.

FEDERAL SPEC: GGG-E-936C, TYPE I, CLASS 1, STYLE A

Ex-tractor No.	Size Drill to Use	For Use on Screw Sizes	For Use on Pipe Sizes	Diam. Small End	Diam. Large End	Lgth. of Flute	Ex-treme Lgth.	Wgt. Ea., Lbs.
EX-1	5/64	#8 to 1/4		.054	5/32	11/16	2	.02
EX-2	7/64	#12 to 5/16		.080	3/16	7/8	2-3/8	.02
EX-3	5/32	5/16 to 3/8		1/8	1/4	1	2-3/4	.03
EX-4	1/4	3/8 to 1/2		3/16	11/32	1-3/16	3	.06
EX-5	17/64	1/2 to 5/8	1/2 & 5/8	15/64	7/16	1-9/16	3-3/8	.06
EX-6	13/32	5/8 to 3/4	3/4	3/8	19/32	1-3/4	3-3/4	.19
EX-7	17/32	3/4 to 7/8	7/8	1/2	3/4	2-1/8	4-1/8	.38
EX-8	13/16	7/8 to 1	1	3/4	1	2-1/8	4-3/8	.69
EX-9	1-1/16	1 to 1 1/8	1 1/8	1	1-9/32	2-1/4	4-5/8	1.2
EX-10	1-5/16	1 1/8 to 1 1/4	1 1/4	1-1/4	1-9/16	2-1/2	5	1.8
EX-11	1-9/16	1 1/4 to 1 1/2	1 1/2	1-1/2	1-7/8	3	5-5/8	2.9
EX-12	1-15/16	1 1/2 to 1 5/8	1 5/8	1-7/8	2-5/16	3-1/2	6-1/4	4.4

SET No. EXS-221

6 Extractors, 6 High Speed Drills

Weight, 1.1 lbs.

A handy set for bench or tool chest. Correct size drill for most efficient use of screw extractor is always conveniently at hand.



Ext'r.	Description	Drill	Description
EX-1	.054" small, 5/32" large diam	TD- 5/64	5/64" Diameter
EX-2	.080" small, 3/16" large diam	TD- 7/64	7/64" Diameter
EX-3	1/8" small, 1/4" large diam	TD- 5/32	5/32" Diameter
EX-4	5/16" small, 1/2" large diam	TD- 1/4	1/4" Diameter
EX-5	3/8" small, 5/8" large diam	TD-17/64	17/64" Diameter
EX-6	1/2" small, 3/4" large diam	TD-13/32	13/32" Diameter

SET EXS-205

5 Tools in Plastic Case
Weight, .5 lb.

For use on screws up to 5/16" and pipe up to 1/4" diameter.



One	Description
EX-1	For #8 to 1/4 screws
EX-2	For #12 to 5/16 screws
EX-3	For 5/16 to 3/8 screws
EX-4	For 3/8 to 1/2 screws, 1/2 pipe
EX-5	For 1/2 to 3/4 screws, 3/4 pipe

SET EXS-206

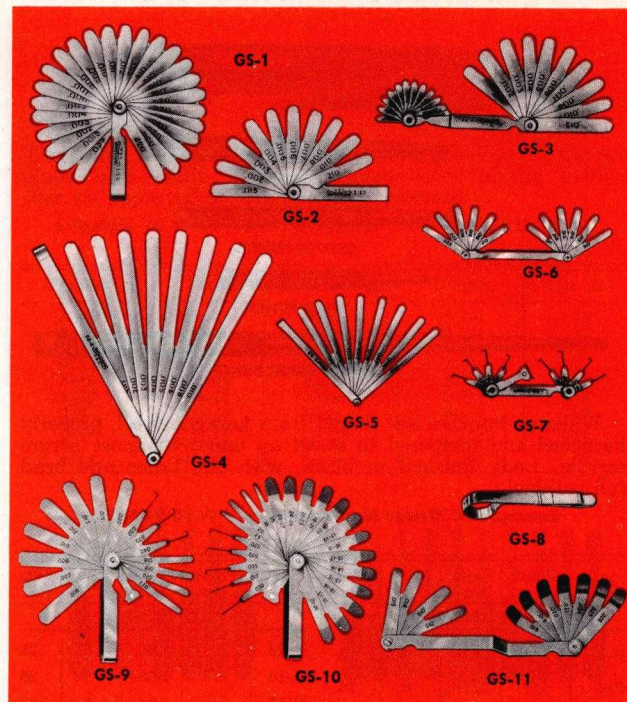
6 Tools in Plastic Case
Weight, .63 lb.

For use on screws up to 5/8" and pipe up to 3/4" diameter.



One	Description
EX-1	For #8 to 1/4 screws
EX-2	For #12 to 5/16 screws
EX-3	For 5/16 to 3/8 screws
EX-4	For 3/8 to 1/2 screws, 1/2 pipe
EX-5	For 1/2 to 3/4 screws, 3/4 pipe
EX-6	For 3/4 to 1" screws, 3/4 pipe

FEELER GAUGE SETS



Sets have knurled lock-nuts which allows the user to select the required blade size and then lock it into position.

FEDERAL SPEC: SETS GS-1, GS-2, GS-5, GGG-G-17B, TYPE VIII, CLASS 1, STYLE A, B; SET GS-7, GGG-G-17B, TYPE IX, CLASS 2, STYLE A

SET No. GS-1 Master Feeler Gauge. 25 Blades 3-5/16 x 1/2" in the following thicknesses—.0015, .002, .003, .004, .005, .006, .007, .008, .009, .010, .011, .012, .013, .014, .015, .016, .018, .020, .022, .024, .025, .028, .030, .032 and .035. Wgt., .22 lb.

SET No. GS-2 Standard Feeler Gauge. 10 Blades 3-5/16 x 1/2" in the following thicknesses—.002, .003, .004, .005, .006, .007, .008, .010, .012 and .015. Weight, .09 lb.

SET No. GS-3 Combination Feeler Gauge. 10 Blades 3 x 1/2" in the following thicknesses—.002, .003, .004, .005, .006, .007, .008, .010, .013, .015; 12 Blades 1-3/4 x 1/4" in the following thicknesses—.011, .012, .013, .014, .015, .016, .017, .018, .019, .020, .022 and .025. Weight, .13 lb.

SET No. GS-4 Piston Feeler Gauge. 8 Blades 9 x 1/2" in the following thicknesses—.002, .003, .004, .005, .006, .008, .010 and .015. Weight, .16 lb.

SET No. GS-5 Brake Feeler Gauge. 9 Blades 4 x 1/4" in the following thicknesses—.002, .004, .005, .006, .007, .008, .010, .012 and .015. Weight, .03 lb.

SET No. GS-6 Ignition Feeler Gauge. 12 Blades 1-3/4 x 1/4" in the following thicknesses—.011, .012, .013, .014, .015, .016, .017, .018, .019, .020, .022 and .025. Weight, .09 lb.

SET No. GS-7 Spark Plug Gap Feeler Gauge. 8 90° Wires—.022, .025, .028, .030, .032, .035, .038, .040 and electrode bender. Weight, .06 lb.

No. GS-8 Feeler Gauge Stock Holder. 4-3/4" long. Holds one 12" Blade, any thickness. Weight, .09 lb.

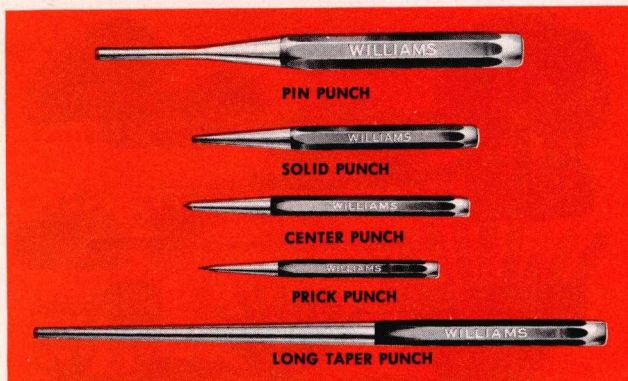
SET No. GS-9 Special Chevrolet Feeler Gauge. 8 Blades 3-5/16 x 1/2" in the following thicknesses—.006, .007, .008, .010, .012, .013, .015, .020; 4 Blades 3-5/16 x 1/4" in the following thicknesses—.016, .018, .020, .022; 3 90° Wires—.032, .035, .040; and one electrode bender. Weight, .16 lb.

SET No. GS-10 Special Ford Feeler Gauge. 13 Step Ground GO-NO-GO Blades 3-5/16 x 1/2" in the following thicknesses—.010-.012, .011-.013, .012-.014, .013-.015, .014-.016, .015-.017, .016-.018, .017-.019, .018-.020, .019-.021, .021-.023, .024-.026, .025-.027; 4 Blades 3-5/16 x 1/4" in the following thicknesses—.015, .016, .020, .025; 2 Straight Wires—.017 and .030; 3 90° Wires—.025, .028, .035 and one electrode bender. Weight, .19 lb.

SET No. GS-11 Combination O.H.V. Feeler Gauge. 11 Blades 3-5/16 x 1/2" in the following thicknesses—Flat, .015, .016, .018, .019—Offset with 45° step, .018, .019, .020, .021, .024, .025, .026. Especially useful on Ford and Mercury. Weight, .19 lb.



PUNCHES



Williams Punches are forged from hexagon steel, properly hardened and tempered to stand up under the most severe service. Body finished in black, with the taper and head full polished.

Example of Order Nomenclature: "P-15 PUNCH"

FEDERAL SPEC: GGG-P-831E1

No.	Point Diam.	Stock Size	Lgth.	Wt. Ea.
PIN PUNCHES				
P-3	3/32	5/16	6	.16
P-4	1/8	5/16	6	.16
P-5	5/32	5/16	6	.16
P-6	3/16	1/2	6	.26
P-8	1/4	1/2	6	.28
P-10	5/16	1/2	6	.28
LONG TAPER PUNCHES				
P-25	5/32	3/8	9	.24
P-26	3/16	1/2	10	.44
P-28	1/4	5/8	12	.83
P-28A	1/4	3/4	15	1.6
P-29	5/16	5/8	16	1.1
No.	Point Diam.	Stock Size	Lgth.	Wt. Ea.
SOLID PUNCHES				
P-13	3/32	1/2	6	.28
P-14	1/8	1/2	6	.28
P-15	5/32	1/2	6	.28
P-16	3/16	1/2	6	.29
P-17	1/4	1/2	6	.30
PRICK PUNCHES				
P-30	.....	3/8	5	.14
P-32	.....	1/2	6	.27
CENTER PUNCHES				
P-38	.....	1/4	3-1/2	.05
P-39	.....	5/16	4-1/4	.08
P-40	.....	3/8	5	.14
P-42	.....	1/2	6	.31

CHISELS

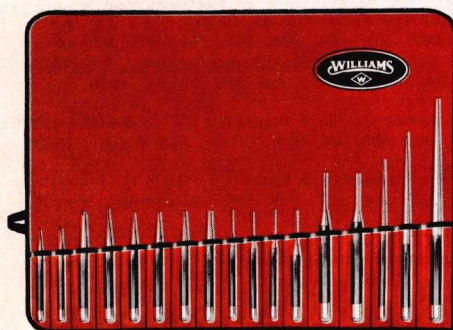


Williams Chisels are forged from hexagon steel, hardened and tempered. Body finished in black with full polished ends. Cutting edges of All Steel Wood Chisels are ground and polished to razor-like sharpness.

Example of Order Nomenclature: "C-46 CHISEL"

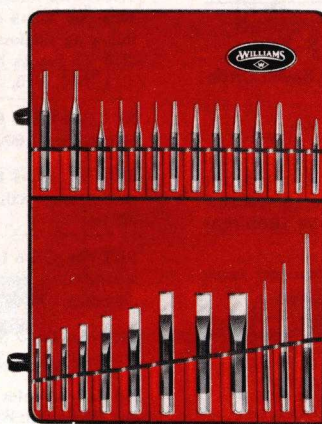
FEDERAL SPEC: GGG-C-313A-2

No.	Width of Cut	Stock Size	Lgth.	Wt. Ea.
COLD OR FLAT CHISELS				
C-8	1/4	1/4	5	.07
C-10	5/16	1/4	5	.08
C-12	3/8	5/16	5-1/2	.11
C-16	1/2	7/16	6	.24
C-20	5/8	1/2	6-1/2	.37
C-24	3/4	5/8	7	.61
C-28	7/8	3/4	7-1/2	.89
C-32	1	7/8	8	1.3
C-36	1-1/8	1	8	1.7
EXTRA LONG COLD CHISELS				
C-120	5/8	1/2	12	.70
C-124	3/4	3/4	12	1.5
C-125	3/4	3/4	15	1.9
C-126	3/4	3/4	18	2.3
C-132	1	7/8	12	2.
C-133	1	7/8	18	3.2
No.	Width of Cut	Stock Size	Lgth.	Wt. Ea.
CAPE CHISELS				
C-40	3/16	3/8	6	.16
C-42	1/4	1/2	6-1/4	.27
C-44	5/16	1/2	6-1/4	.30
C-46	3/8	5/8	7	.52
DIAMOND POINT CHISELS				
C-60	1/4	3/8	5-1/4	.18
C-62	3/8	5/8	7	.56
C-64	1/2	3/4	7	.80
C-66	5/8	3/4	8	.85
ROUND NOSE CHISELS				
C-72	1/4	1/2	6-1/4	.28
C-73	5/16	1/2	6-1/4	.31
C-74	3/8	5/8	7	.52
C-75	1/2	3/4	8	.83
ALL STEEL WOOD CHISELS				
C-94	1/2	3/8	7-1/2	.22
C-96	3/4	1/2	9	.44
C-98	1	5/8	9-1/2	.71
C-99	1-1/8	5/8	10	.75



SET No. PS-17R
17 Punches in K-18 Roll Kit

SET No. PS-17T
17 Tools Only
Weight, 6.4 lbs.



SET No. PC-26R
17 Punches and 9 Chisels
in K-17 Roll Kit

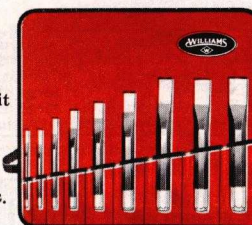
SET No. PC-26T
26 Tools Only
Weight, 12.4 lbs.



SET
No. CS-8R
8 Chisels
In K-8 Roll Kit

SET
No. CS-9R
9 Chisels
In K-16 Roll Kit

SET
No. CS-9T
9 Tools Only
Weight, 6.5 lbs.



One Ea.	Description	One Ea.	Description
P-3	Pin, 6"x $\frac{3}{32}$ " pt	P-16	Sld, 6"x $\frac{3}{16}$ " pt
P-4	Pin, 6"x $\frac{1}{8}$ " pt	P-17	Sld 6"x $\frac{1}{4}$ " pt
P-5	Pin, 6"x $\frac{5}{32}$ " pt	P-25	Tpr, 9"x $\frac{5}{32}$ " pt
P-6	Pin, 6"x $\frac{3}{16}$ " pt	P-26	Tpr, 10"x $\frac{3}{16}$ " pt
P-8	Pin, 6"x $\frac{1}{4}$ " pt	P-28	Tpr, 12"x $\frac{1}{4}$ " pt
P-10	Pin, 6"x $\frac{5}{16}$ " pt	P-30	Prick Punch, 5"
P-13	Sld, 6"x $\frac{3}{32}$ " pt	P-40	Ctr Punch 5"
P-14	Sld, 6"x $\frac{1}{8}$ " pt	P-42	Ctr Punch, 6"
P-15	Sld, 6"x $\frac{5}{32}$ " pt	.....	.....

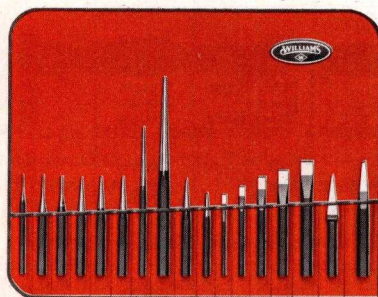
One	Description	One	Description
P-3	Pin, 6"x $\frac{3}{32}$ "	P-28	Taper, 12"x $\frac{1}{4}$ "
P-4	Pin, 6"x $\frac{1}{8}$ "	P-30	Prick Punch, 5"
P-5	Pin, 6"x $\frac{5}{32}$ "	P-40	Ctr Punch, 5"
P-6	Pin, 6"x $\frac{3}{16}$ "	P-42	Ctr Punch, 6"
P-8	Pin, 6"x $\frac{1}{4}$ "	C-8	Cold, 4 $\frac{3}{4}$ "x $\frac{1}{4}$ "
P-10	Pin, 6"x $\frac{5}{16}$ "	C-10	Cold, 5 $\frac{1}{2}$ "x $\frac{3}{8}$ "
P-13	Solid, 6"x $\frac{3}{32}$ "	C-12	Cold, 6 $\frac{1}{2}$ "x $\frac{3}{8}$ "
P-14	Solid, 6"x $\frac{1}{8}$ "	C-16	Cold, 6 $\frac{1}{2}$ "x $\frac{1}{2}$ "
P-15	Solid, 6"x $\frac{5}{32}$ "	C-20	Cold, 6 $\frac{1}{2}$ "x $\frac{3}{4}$ "
P-16	Solid, 6"x $\frac{3}{16}$ "	C-24	Cold, 7"x $\frac{3}{4}$ "
P-17	Solid, 6"x $\frac{1}{4}$ "	C-28	Cold, 8"x $\frac{1}{2}$ "
P-25	Taper, 9"x $\frac{5}{32}$ "	C-32	Cold, 8"x1"
P-26	Taper, 10"x $\frac{3}{16}$ "	C-36	Cold, 8"x1 $\frac{1}{8}$ "

One Ea.	Description	One Ea.	Description
SET No. CS-8R			
C-40	Cape, 6"x $\frac{3}{16}$ "	C-60	Dia Pt, 5 $\frac{1}{4}$ "x $\frac{1}{4}$ "
C-42	Cape, 6 $\frac{1}{4}$ "x $\frac{1}{4}$ "	C-62	Dia Pt, 7"x $\frac{3}{8}$ "
C-44	Cape, 6 $\frac{1}{4}$ "x $\frac{5}{16}$ "	C-72	Rd Ns, 6 $\frac{1}{4}$ "x $\frac{1}{4}$ "
C-46	Cape, 7"x $\frac{3}{8}$ "	C-74	Rd Ns, 7"x $\frac{3}{8}$ "
SET No. CS-9R			
C-8	Chisel, 4 $\frac{3}{4}$ "x $\frac{1}{4}$ "	C-24	Chisel, 7"x $\frac{3}{4}$ "
C-10	Chisel, 5"x $\frac{3}{16}$ "	C-28	Chisel, 8"x $\frac{3}{8}$ "
C-12	Chisel, 5 $\frac{1}{2}$ "x $\frac{3}{8}$ "	C-32	Chisel, 8"x1"
C-16	Chisel, 6"x $\frac{1}{2}$ "	C-36	Chisel, 8"x1 $\frac{1}{8}$ "
C-20	Chisel, 6 $\frac{1}{2}$ "x $\frac{3}{8}$"	.....	.....

PINCH and ROLL BARS



No.	Width of Cut	Stock Size	Length	Weight Each, Lbs.
RIVET BUSTER				
C-422	3/4	3/4	12	1.5
PINCH BARS				
C-80	3/4	1/2	14	.75
C-82	1	5/8	16	1.3
C-83	7/8	3/4	20	2.1
ROLL BARS				
C-709	.....	3/8	9-1/4	.27
C-715	.....	1/2	15-1/2	.84
C-718	.....	5/8	18	1.5



SET
No. PC-17R
13 Punches
and 4 Chisels
in K-18 Roll Kit

SET
No. PC-17T
17 Tools Only
Weight, 5.3 lbs.

Set contains one each Nos. P-4, P-6, P-8, P-14, P-15, P-16, P-25, P-28, P-32, P-40, C-10, C-12, C-16, C-20, C-24, C-42, and C-62 as described on page 100.



SET No. CCS-4R
4 Cape Chisels in K-5 Roll Kit
Weight, 1.4 lbs.

Set contains one each Nos. C-40, C-42, C-44 and C-46 as described on Page 100.



SET No. CDS-4R
4 Diamond Point Chisels
in K-5 Roll Kit
Weight, 2.6 lbs.

Set contains one each Nos. C-60, C-62, C-64 and C-66 as described on Page 100.



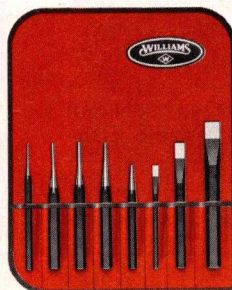
SET No. CRS-4R
4 Round Nose Chisels
in K-5 Roll Kit
Weight, 2.1 lbs.

Set contains one each Nos. C-72, C-73, C-74 and C-75 as described on Page 100.



SET No. PS-4R
4 Center Punches
in K-5 Roll Kit
Weight, .81 lbs.

Set contains one each Nos. P-38, P-39, P-40 and P-42 as described on Page 100.



SET
No. PC-8R
5 Punches
and 3 Chisels
in K-8 Roll Kit

SET
No. PC-8T
8 Tools Only
Weight,
2.1 lbs.

Set contains one each Nos. P-4, P-6, P-8, P-15, P-40, C-10, C-16, and C-24 as described on page 100.

HOLLOW-SHAFT NUT DRIVERS

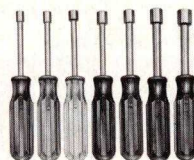


These hollow-shaft nut drivers have hex openings. Shafts are plated and solidly anchored in color-coded plastic handles that are approved by Underwriters Laboratory.

Example of Order Nomenclature: "ND-12 NUT DRIVER"

FEDERAL SPEC: GGG-W-657C, TYPE I

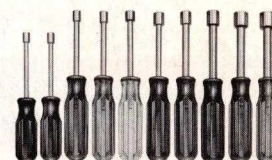
Opening	No.	Handle Color	Length	Wgt. Ea.
3/16	ND-6	Black	6-1/4	.13
7/32	ND-7	Brown	6-1/4	.13
1/4	ND-8	Red	7-1/4	.17
9/32	ND-9	Orange	7-1/4	.19
5/16	ND-10	Amber	7-1/4	.19
11/32	ND-11	Green	7-1/4	.19
3/8	ND-12	Blue	7-1/4	.19
7/16	ND-14	Brown	7-1/4	.21
1/2	ND-16	Red	7-1/4	.22
9/16	ND-18	Orange	7-1/4	.23



SET No. NDS-7
7 Nut Drivers
In Cardboard Box

Weight, 1.4 lbs.

One each Nos. ND-8, ND-9, ND-10, ND-11, ND-12, ND-14 and ND-16.



SET No. NDS-10
10 Nut Drivers
In Cardboard Box

Weight, 1.8 lbs.

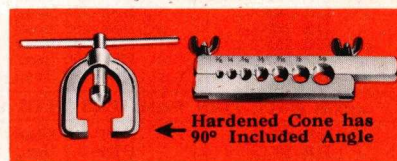
One each Nos. ND-6 thru ND-18, as listed above.

TUBE CUTTER and FLARING TOOL



No. TT-166 TUBE CUTTER
Weight, .40 lb.

No. TT-166-1 CUTTER WHEEL
Tube cutter cuts copper, brass, bronze or similar tubing from 1/8 to 1-1/8" diameter. Extra cutter wheel included.



No. TT-162 FLARING TOOL
Total Weight, 2 lbs.

Forged yoke-type compressor slips over die block to make even, accurate flaring and taper. Includes flaring dies for 3/16, 1/4, 5/16, 3/8, 7/16, 1/2 and 5/8" tubing.



SET No. TT-165A
In TB-16 Metal Case
8-1/2" x 5-3/8" x 2-1/2"
Total Weight, 4.2 lbs.

Set contains one each TT-166 and TT-162 as described above.

SOFT-FACE HAMMERS



FEDERAL SPEC: GGG-H-33A-6, TYPE I, CLASS 3, STYLE D, DESIGN A AND DESIGN B

HSF-100, 150, 200, 250 and 300 have aluminum alloy heads. HSF-105, 155, 205, 255 and 305 have die-cast zinc-alloy heads. HSF-152 and 202 have chrome-plated brass heads and are shot-loaded, offering 30% more driving power with less worker fatigue. Bodies and Tips are shipped unassembled.

Example of Order Nomenclature: "HSF-150 HAMMER BODY"

No.	Weight Class	Head		Handle Length	Wgt. Ea.
		Diameter	Length		
HSF-100	5 oz.	1	2	11-3/8	.25
HSF-105	8 oz.	1	2	11-3/8	.38
HSF-150	3/4 lb.	1-1/2	2-3/8	13	.50
HSF-152	1-1/4 lb.	1-1/2	3-1/2	13	.88
HSF-155	1-1/4 lb.	1-1/2	2-3/8	13	.94
HSF-200	1-1/4 lb.	2	2-1/2	13	.81
HSF-202	2-1/2 lb.	2	4-5/8	13	1.8
HSF-205	2 lb.	2	2-1/2	13	1.6
HSF-250	2 lb.	2-1/2	3-1/4	15	1.6
HSF-255	4 lb.	2-1/2	3-1/4	13	3.1
HSF-300	3-1/2 lb.	3	3-3/4	14	2.4
HSF-305	6 lb.	3	3-3/4	14	5.1

REPLACEMENT HANDLES — WEDGE INCLUDED

No.	To Fit Hammer Number	Wgt. Ea. lbs.
FOR SOFT FACE HAMMERS		
HR-100	HSF-100 Head	.19
HR-105	HSF-105 Head	.19
HR-150	HSF-150 Head	.28
HR-155	HSF-155 Head	.28
HR-200	HSF-200 Head	.31
HR-205	HSF-205 Head	.31
HR-250	HSF-250 Head	.47
HR-255	HSF-255 Head	.44
HR-300	HSF-300 Head	.69
HR-305	HSF-305 Head	.69
FOR BALL PEIN HAMMERS WITH WOOD HANDLES		
HR-49	HBP-7-0 Head	.09
HR-50	HBP-5-0 Head	.11
HR-53	HBP-3-0 Head	.19
HR-56	HBP-2-0 Head	.22
HR-59	HBP-0 Head	.34
HR-63	HBP-2 Head	.39
HR-66	HBP-4 Head	.48
HR-69	HBP-6 Head	.58



Example of Order Nomenclature: "HSF-20T TIP"

No.	Diameter	Hardness	Color	Wgt. Ea., lbs.
HSF-10S	1	Soft	Brown	.05
HSF-10M	1	Medium	Red	.05
HSF-10T	1	Tough	Green	.05
HSF-10N	1	Med. Hard	Cream	.05
HSF-10H	1	Hard	Black	.05
HSF-10XH	1	Extra Hard	Yellow	.05
HSF-15S	1-1/2	Soft	Brown	.14
HSF-15M	1-1/2	Medium	Red	.14
HSF-15T	1-1/2	Tough	Green	.14
HSF-15N	1-1/2	Med. Hard	Cream	.14
HSF-15H	1-1/2	Hard	Black	.14
HSF-15XH	1-1/2	Extra Hard	Yellow	.14
HSF-20S	2	Soft	Brown	.27
HSF-20M	2	Medium	Red	.27
HSF-20T	2	Tough	Green	.27
HSF-20N	2	Med. Hard	Cream	.27
HSF-20H	2	Hard	Black	.27
HSF-20XH	2	Extra Hard	Yellow	.27
HSF-25S	2-1/2	Soft	Brown	.44
HSF-25M	2-1/2	Medium	Red	.44
HSF-25T	2-1/2	Tough	Green	.44
HSF-25N	2-1/2	Med. Hard	Cream	.44
HSF-25H	2-1/2	Hard	Black	.44
HSF-25XH	2-1/2	Extra Hard	Yellow	.44
HSF-30S	3	Soft	Brown	.66
HSF-30M	3	Medium	Red	.66
HSF-30T	3	Tough	Green	.66
HSF-30N	3	Med. Hard	Cream	.66
HSF-30H	3	Hard	Black	.66
HSF-30XH	3	Extra Hard	Yellow	.66

BALL PEIN HAMMERS



WOOD HANDLES

Drop-forged from specially selected steel and carefully heat-treated for uniform, dependable strength and hardness. Handles, made from second growth white hickory and clear lacquered, are permanently wedged into the heads.

FEDERAL SPEC: GGG-H-86C-2, TYPE II, CLASS 1, STYLE A

Number	Weight Class	Length	Wgt. Ea. Lbs.
HBP-7-0	2 oz.	9-7/16	.23
HBP-5-0	4 oz.	9-7/16	.33
HBP-3-0	8 oz.	11-5/8	.64
HBP-2-0	12 oz.	13-5/16	1.1
HBP-0	1 lb.	14-1/4	1.3
HBP-2	1-1/2 lbs.	14-7/8	2.
HBP-4	2 lbs.	15-1/2	2.4
HBP-6	2-1/2 lbs.	16-11/16	3.2



FIBERGLASS HANDLES

Forged from high grade carbon steel, specially heat-treated to assure exact degree of hardness. Faces, and peins are polished. Long lasting fiberglass handles. Black vinyl grips provide firm hand hold.

FEDERAL SPEC: GGG-H-86C-2, TYPE II, CLASS 1, STYLE B

Number	Weight Class	Length	Wgt. Ea. Lbs.
HP-2	2 oz.	10	.38
HP-4	4 oz.	11	.56
HP-8	8 oz.	11	.81
HP-12	12 oz.	12-1/2	1.1
HP-16	1 lb.	13	1.4
HP-24	1-1/2 lb.	14	1.9
HP-32	2 lb.	14	2.4
HP-40	2-1/2 lb.	16	3.0

SLEDGE AND CROSS-PEIN HAMMERS



SLEDGE HAMMER — 36" HANDLE



SLEDGE HAMMER — 15" HANDLE



CROSS-PEIN HAMMER

Double-Face Heads are forged and induction heated for uniform toughness. Government grade 'AR' fire hardened hickory handles provide durable performance. Wedge design assures strong handle-to-head bond.

FEDERAL SPEC: GGG-H-86C

SLEDGE (BLACKSMITH'S) HAMMER

No.	Weight Class	Handle Length	Face Diameter	Wgt. Ea.
SH-2	2 lb.	15"	1-3/8"	2.6
SH-3	3 lb.	15"	1-5/8"	3.6
SH-4	4 lb.	15"	1-3/4"	4.6
SH-6	6 lb.	36"	2"	7
SH-8	8 lb.	36"	2-1/4"	9
SH-10	10 lb.	36"	2-1/2"	11
SH-12	12 lb.	36"	2-5/8"	13

CROSS-PEIN HAMMER

No.	Weight Class	Handle Length	Face Diameter	Wgt. Ea.
CP-3	3 lb.	15"	1-5/8"	3.6

REPLACEMENT HANDLES

No.	For Hammer	Wgt.	No.	For Hammer	Wgt.
HR-2	SH-2	.6 lb.	HR-5	SH-6, SH-8	1 lb.
HR-3	SH-3, CP-3	.6 lb.	HR-6	SH-10, SH-12	1 lb.
HR-4*	SH-3	1 lb.			

*Long — 32" handle

HIGH SPEED DRILLS



Williams High Speed Jobber Length Drills are suitable for all general purposes. Fast cutting speeds will not affect their hardness. Sizes 1/16 to 9/32 inclusive are packaged 12 to an envelope, all others 6 to an envelope.

Example of Order Nomenclature: "TD-5/64 DRILL"

No. and Diameter	Decimal Equivalent	Length Overall	Length of Twist	Wgt. Per Doz., Lbs.
TD- 1/16	.0625	1-7/8	7/8	.03
TD- 5/64	.0781	2	1	.05
TD- 3/32	.0937	2-1/4	1- 1/4	.06
TD- 7/64	.1094	2-5/8	1- 1/2	.09
TD- 1/8	.1250	2-3/4	1- 5/8	.11
TD- 9/64	.1406	2-7/8	1- 3/4	.13
TD- 5/32	.1562	3-1/8	2	.17
TD-11/64	.1719	3-1/4	2- 1/8	.20
TD- 3/16	.1875	3-1/2	2- 5/16	.23
TD-13/64	.2031	3-5/8	2- 7/16	.28
TD- 7/32	.2187	3-3/4	2- 1/2	.33
TD-15/64	.2344	3-7/8	2- 5/8	.39
TD- 1/4	.2500	4	2- 3/4	.45
TD-17/64	.2656	4-1/8	2- 7/8	.56
TD- 9/32	.2812	4-1/4	2-15/16	.64
TD-19/64	.2969	4-3/8	3- 1/16	.70
TD- 5/16	.3125	4-1/2	3- 3/16	.86
TD-21/64	.3281	4-5/8	3- 5/16	.94
TD-11/32	.3437	4-3/4	3- 7/16	1.
TD-23/64	.3594	4-7/8	3- 1/2	1.1
TD- 3/8	.3750	5	3- 5/8	1.3
TD-25/64	.3906	5-1/8	3- 3/4	1.3
TD-13/32	.4062	5-1/4	3- 7/8	1.5
TD-27/64	.4219	5-3/8	3-15/16	1.6
TD- 7/16	.4375	5-1/2	4- 1/16	1.8
TD-29/64	.4531	5-5/8	4- 3/16	1.9
TD-15/32	.4687	5-3/4	4- 5/16	2.1
TD-31/64	.4844	5-7/8	4- 3/8	2.3
TD- 1/2	.5000	6	4- 1/2	2.4

HIGH SPEED DRILL SETS

Drills are held in panels which fold into the case like pages in a book. Each compartment is properly marked with drill size and its decimal inch equivalent. Drills will not fall out of place.

Example of Order Nomenclature: "TDS-15 DRILL SET"

No.	No. of Drills	Drill Sizes	Size of Case	Wgt. Each, Lbs.
TDS-13	13	1/16 to 1/4 by 64ths	11/16x2x4-5/8	.5
TDS-15	15	1/16 to 1/2 by 32nds	1-3/16x4x7	3.6
TDS-21	21	1/16 to 3/8 by 64ths	1x4x6	1.8
TDS-29	29	1/16 to 1/2 by 64ths	1-5/8 x4x7	2.3

MASONRY DRILLS



Williams Carbide Tipped Masonry Drills easily penetrate concrete, cement, brick, slate, marble, stone and all types of masonry materials. They produce clean, sharp-edged, accurate holes. Individually packed in cardboard tubes, sharpening instructions included.

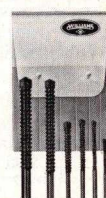
Example of Order Nomenclature: "CMD-9/16 DRILL"

No. and Diameter	Actual Diameter	Extreme Length	Shank Diameter	Shank Length	Weight Each, Lbs.
CMD- 1/8	.130	2-1/2	1/8	1-1/4	.01
CMD- 3/16	.198	3	3/16	1-1/4	.03
CMD- 1/4	.260	4	1/4	1-3/8	.05
CMD- 5/16	.328	4	1/4	1-1/2	.05
CMD- 3/8	.390	4	1/4	1-1/2	.06
CMD- 7/16	.458	6	3/8	1-5/8	.13
CMD- 1/2	.525	6	3/8	1-5/8	.19
CMD- 9/16	.587	6	7/16	1-5/8	.25
CMD- 5/8	.650	6	1/2	1-5/8	.31
CMD-11/16	.713	6	1/2	1-5/8	.38
CMD- 3/4	.775	6	1/2	1-5/8	.44
CMD- 7/8	.905	6	1/2	1-5/8	.56
CMD-1	1.030	6	1/2	1-5/8	.75
CMD-1-1/8	1.160	6	1/2	1-5/8	.75
CMD-1-1/4	1.285	10	1/2	1-5/8	1.7
CMD-1-1/2	1.535	10	1/2	1-5/8	2.3

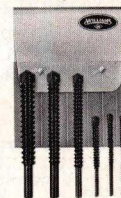
MASONRY DRILL SETS



SET No. CMD-2101
4 Drill Bits
in Plastic Kit
Weight, .39 lb.



SET No. CMD-2102
6 Drill Bits
in Plastic Kit
Weight, 1.1 lbs.



SET No. CMD-2103
6 Drill Bits
in Plastic Kit
Weight, 1.5 lbs.

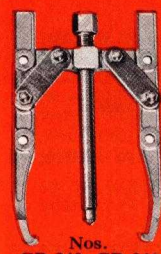
No. and Diameter	Shank Length	No. and Diameter	Shank Length	No. and Diameter	Shank Length
CMD-1/4	1-3/8	CMD-3/8	1-1/2	CMD-1/2	1-5/8
CMD-5/16	1-1/2				
SET No. CMD-2101					
CMD-3/16	1-1/4	CMD-5/16	1-1/2	CMD-1/2	1-5/8
CMD-1/4	1-3/8	CMD-3/8	1-1/2	CMD-5/8	1-5/8
SET No. CMD-2102					
CMD-1/4	1-3/8	CMD-3/8	1-1/2	CMD-5/8	1-5/8
CMD-5/16	1-1/2	CMD-1/2	1-5/8	CMD-3/4	1-5/8
SET No. CMD-2103					
CMD-1/4	1-3/8	CMD-3/8	1-1/2	CMD-5/8	1-5/8
CMD-5/16	1-1/2	CMD-1/2	1-5/8	CMD-3/4	1-5/8

2-JAW PULLERS

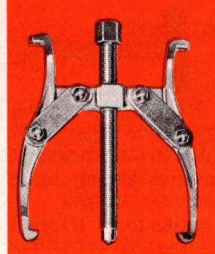
NOTE:

No. GP-241 has plain hook at both ends of jaws.

No. GP-242 has slotted hooks on one end of jaws for hooking on to cap screws to remove gears and parts which have tapped holes.



Nos.
GP-240, GP-243
GP-249, GP-250



Nos. GP-241, GP-242

The buttress type thread used on the forcing screw affords 1/3 more strength. The wide range of sizes and jaw styles provide maximum versatility.

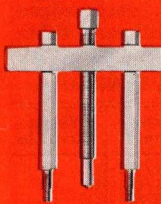
Forged from finest alloy steel, both body and jaws are heat-treated for utmost strength and durability.

Cadmium-plated finish. Individually packaged.

FEDERAL SPEC: GGG-P-00781B-1, TYPE I, CLASS 1, STYLE A, B

No.	Maximum Spread Inches	Maximum Reach Inches	Length and Diameter of Forcing Screw	Capacity Tons	Weight Each, Lbs.
GP-240	0 to 4	3-3/8	3/8 x 4-1/4	1-1/4	1.
GP-241	0 to 6	3-1/4	5/8 x 6	4	2.
GP-242	0 to 8	5-1/2	3/4 x 8-5/16	7	4.3
GP-243	0 to 10	9	3/4 x 8-5/16	7	5.
GP-249	0 to 12	11	13/16 x 12	10	9.5
GP-250	0 to 14	15	13/16 x 12	10	11.7

GP-10 TIMING GEAR PULLER



Here is a very handy tool for pulling timing gears and all other gears that have tapped holes. The sliding jaws enable the tool to handle gears of all widths.

For extra service the 6-1/2 inch side screws are machined to take care of the most used thread sizes, 3/8"-16 and 5/16"-18. By using standard sizes of cap screws, the mechanic has a combination tool for pulling fan pulleys, and gears with tapped holes. Cadmium-plated finish.

No.	Length of Body	Length of Center Screw	Length of Side Screws	Weight Each, Lbs.
GP-10	6-1/2	5-1/2	5	2.3

BEARING SPLITTERS



The inside of the counter-bore is machined down to nearly a sharp edge, which allows the tool to be forced back of the bearing or gear by tightening the two nuts. The bearing is separated and removed with the aid of a gear puller or arbor press. Made from alloy steel. Cadmium-plated finish. Individually packaged.

* Pullers GP-242 or GP-243 can be used with this tool by gripping around outside.

FEDERAL SPEC: GGG-P-00781B-1, TYPE XII

No.	Capacity	Hole Thread Size	Weight
GP-501	0 to 2-1/4	3/8-16	1.5
*GP-503	0 to 4-1/4	5/8-18	5.

GP-189A HARMONIC BALANCER PULLER



For pulling balancers, vibration dampers, gears with tapped holes. The four slots in the yoke allow use of this tool in either two or three hole applications. Swivel design provides for full floating action thus preventing damage to the shaft ends.

Three sets of hardened side screws are furnished: two 3/8"-16 x 4" long, three 3/8"-24 x 2" long, three 5/16"-18 x 2" long. Forcing screw is 5/8"-18 x 6". Weight Each, 2.8 lbs.

3-JAW PULLERS

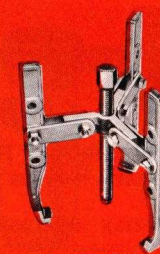
NOTE:

No. GP-244 has plain hook on both ends of jaws.

No. GP-245 has slotted hooks on one end of jaws for hooking on to cap screws to remove gears and parts which have tapped holes.



Nos.
GP-244, GP-245



No. GP-246

Williams 3-Jaw Pullers provide maximum strength and performance for the toughest pulling jobs, because their three strong jaws distribute a powerful 3-point, balanced force on the part being pulled.

Their popular size range adapts them to many uses in the proper maintenance of automobiles, trucks, tractors, farm equipment, airplanes and industrial machinery and equipment.

Forged from finest alloy steel, both body and jaws are heat-treated for utmost strength and durability.

Cadmium-plated finish. Individually packaged.

Example of Order Nomenclature: "GP-245 PULLER"

FEDERAL SPEC: GGG-P-00781B-1, TYPE I, CLASS 2, STYLE A, B

No.	Maximum Spread Inches	Maximum Reach Inches	Length and Diameter of Forcing Screw	Capacity Tons	Weight Each, Lbs.
GP-244	0 to 6	3-1/4	5/8 x 6	4	2.5
GP-245	0 to 8	5-1/2	3/4 x 8-5/16	7	5.5
GP-246	0 to 10	9	3/4 x 8-5/16	7	6.5

WILLIAMS

GP-5 WHEEL PULLER

FOR REFRIGERATION SERVICE



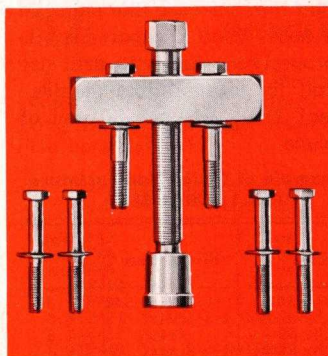
The body, forged from high tensile steel, has four sockets into which either two or all three of the arms may be placed in various positions, providing a combination of grips. Flywheels with even or odd numbers of spokes are pulled with equal ease. All three arms are necessary for odd-spoked wheels, while only two are needed for an even number of spokes. The pulling capacity is 7" diameter. Arms, processed from alloy steel, are held in place by an endless spring. They are instantly reversible by merely turning the arm in the socket.

Example of Order Nomenclature: "GP-5 PULLER"

No.	Capacity Diam.	Body Diam.	Length Arms	Weight Ea..Lbs.	Extra Parts		
GP-5	7	3-1/4	4-1/4	1.7	Arms	Screw	Spring

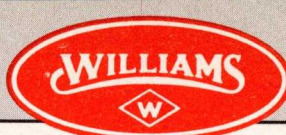
WILLIAMS

GP-187 STEERING WHEEL PULLER



Will remove steering wheels on most cars where the wheel is held by two cap screws and lock nut. Also handy on all types of gears and balancing plates with tapped holes.

Three sets of hardened side screws: 5/16-24x3-1/2" long; 3/8-16x4" long; 5/16-18x4-1/2" long. Made from alloy steel. Cadmium-plated finish. Individually packaged. Weight each, 2.3 lbs.



CHAIN PIPE TONGS

VULCAN®

DROP-FORGED

The Original Vulcan®, introduced by Williams, is still the oil-fields' favorite tongs for general work. Chains swing from the center and can be used on either side of the jaws, thus reducing wear upon specific teeth. Heat-Treated Flat Link Chains meet Military Standards. Jaws are orange baked enamel. Refer to Price List for replacement parts. Chains are listed on next page.

Example of Order Nomenclature: "CT-12 TONG"

*FEDERAL SPEC: GGG-W-00651D-1, TYPE III, CLASS A

No. with Flat Chain	CT-10	CT-11	CT-12	CT-13	CT-13-1/2	CT-14	CT-15	*CT-16
Cap., Size Pipe	1/8-3/4	1/8-1 1/2	1/4-2 1/2	3/4-4	1-6	1 1/2-8	2-12	4-18
Extreme Length	13 3/4	20	27	37	44 1/2	50 1/2	64 1/2	87
Wgt. each, Lbs.	2	5.8	10	17	24	31	52	137
Chain Length...	9 1/2	13 1/2	17 1/2	22 1/2	32	40 1/2	55 1/2	74 1/2
Break. Strain, Lb	5,070	9,400	13,800	17,600	20,100	22,000	31,000	56,000
No. with Cable Chain	CT-12-2	CT-13-2	CT-13 1/2-2	CT-14-2	CT-15-2	CT-16-2		
Chain Length...	18	27	33 1/2	42	57	76		
Break. Strain, Lb	9,000	12,500	14,300	15,700	21,800	40,000		

CHAIN PIPE TONGS

IMPROVED VULCAN®

DROP-FORGED

Jaws double-ended and reversible, are fastened with two tough steel studs. Chains swing from the center and can be used on either side of the jaws, thus reducing wear upon specific teeth. Heat-Treated Flat Link Chains meet Military Standards. Jaws are orange baked enamel. Refer to Price List for replacement parts. Chains are listed on next page.

Example of Order Nomenclature: "CT-33 1/2 TONG"

*FEDERAL SPEC: GGG-W-00651D-1, TYPE III, CLASS A

Number	CT-31	CT-32	*CT-33	*CT-33 1/2	*CT-34	*CT-35
Capacity, Size Pipe, Inches	1/8-1 1/2	1/4-2 1/2	3/4-4	1-6	1 1/2-8	2-12
Extreme Length	20	27	37	44 1/2	50 1/2	64 1/2
Weight each, Lbs.	5.8	10	17	24	31	52
Flat Link Chain Length	13 1/2	17 1/2	22 1/2	32	40 1/2	55 1/2
Breaking Strain, Lbs.	9,400	13,800	17,600	20,100	22,000	31,000

CHAIN WRENCHES



Handle is drop-forged from Selected Alloy Steel, heat-treated and chrome-plated. Successive bites can be taken without removing the wrench from the work. Ideal for use on close quarter applications in industry. Extra length chains on special order. Refer to Price List for replacement chain and pin.

Number	Capacity	Length	Weight, Ea., Lbs.
CW-4	3/8 to 4" O.D.	11	1.4
*CW-420	3/8 to 4" O.D.	20	2.3

*Black oxide finish

PIPE and FITTINGS TONGS

VULCAN® SUPERIOR

DROP-FORGED

"V" Recess in the jaws increases grip on pipe or fittings. When the teeth first in use wear, simply unscrew through bolt and turn reversible jaws end-for-end. Heat-Treated Flat Link Chains meet Military Standards. Jaws are orange baked enamel. If single jaw is ordered specify right or left. Refer to Price List for replacement parts. Chains are listed on next page.

Example of Order Nomenclature: "CT-5 TONG"

*FEDERAL SPEC: GGG-W-00651D-1, TYPE III, CLASS B

No. with Flat Chain	CT-1	CT-2	*CT-3	*CT-3-½	*CT-4	*CT-5
Cap., Pipe and Fittings.....	⅛-1½	¼-2½	¾-4	1-6	1½-8	2-12
Extreme Length.....	20	27	37	44½	50½	64½
Weight each, Lbs.....	5.5	10.	17.	26.	34.	54.
Chain Length.....	13½	17½	22½	32	40½	55½
Breaking Strain, Lbs.....	9,400	13,800	17,600	20,100	22,000	31,000
No. with Cable Chain	CT-2-2	CT-3-2	CT-3½-2	CT-4-2	CT-5-2	
Chain Length.....	18	27	33½	42	57	
Breaking Strain, Lbs.....	9,000	12,500	14,300	15,700	21,800	

CHAIN PIPE TONGS

VULCAN® REVERSIBLE

DROP-FORGED

Without removing the tongs or loosening the chain Vulcan® Reversible Tongs will turn pipe instantly in either direction. Outer jaws can be removed to make an efficient fittings tongs for narrow heads and Flanges. Jaw removal is accomplished by taking out the single through bolt and self-locking nut used in assembly. These outer jaws are reversible end for end. Jaws are orange baked enamel. Heat-treated Flat Link Chains meet Military Standards. Replacement chains are listed on next page.

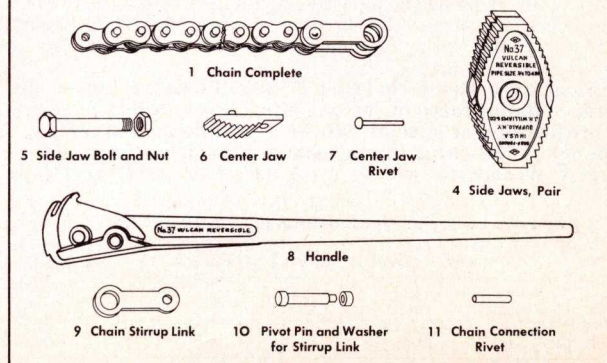
Example of Order Nomenclature: "CT-37 TONG"

*FEDERAL SPEC: GGG-W-00651D-1, TYPE III, CLASS B

Number	CT-27	*CT-37	*CT-47	*CT-57
For Pipe and Fittings, In.	1/4 to 2-1/2	3/4 to 4	1 to 6	1-1/2 to 8
Extreme Length	27	37	44-1/2	50-1/2
Weight each, Lbs.	12.3	19.7	29.3	43
Flat Link Chain Length	17-1/2	22-1/2	32	40-1/2
Breaking Strain, Lbs.	13,800	17,600	20,100	22,100

PARTS FOR NOS. CT-27, 37, 47 and 57 ONLY

Order parts by number as listed in Price List.



HEAT-TREATED PIPE TONG CHAINS

WILLIAMS VULCAN®

CT-10-1 THRU CT-16-1 SERIES



Fits Vulcan Superior CT-1 thru CT-5
Improved Vulcan CT-31 thru CT-35

Fits Vulcan CT-10 thru CT-16

CT-27-1 THRU CT-57-1 SERIES



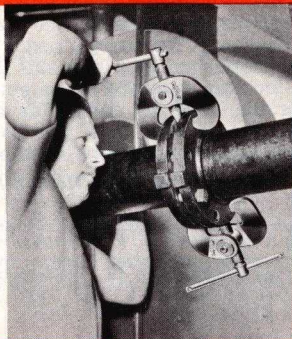
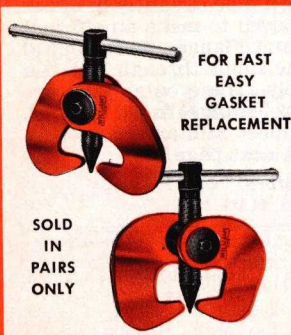
Fits Reversible CT-27 thru CT-57

A 40% increase in strength extends chain life and tong performance. Flat links are made from selected steel, rivets and swing links from alloy steel. Chain is heat-treated after assembly. All chains are percentage proof-tested to two-thirds of breaking strain to Military Standards.

Example of Order Nomenclature: "CT-14-1 CHAIN"

Chain No.	Lgth.	Breaking Strain Lbs.	Williams				Billings		Armstrong		Gearench	
			Superior	Vulcan	Improved	Reversible	Reversible	Reversible	One Jaw	Two Jaw	Titan	Titan Reversible
CT-10-1	9½	5,070	CT-0	CT-10	CT-30	.....	..	..	10	30	10	..
CT-11-1	13½	9,400	CT-1	CT-11	CT-31	.....	..	..	11	31	11	..
CT-12-1	17½	13,800	CT-2	CT-12	CT-32	.....	..	..	12	32	12	..
CT-13-1	22½	17,600	CT-3	CT-13	CT-33	.....	..	..	13	33	13	..
CT-13½-1	32	20,000	CT-3½	CT-13½	CT-33½	.....	..	..	13½	33½	13½	..
CT-14-1	40½	22,000	CT-4	CT-14	CT-34	.....	..	..	14	34	14	..
CT-15-1	55½	31,000	CT-5	CT-15	CT-35	.....	..	..	15	35	15	..
CT-16-1	74½	56,000	.....	CT-16	.....	.....	..	..	16	.....	16	..
CT-27-1	17½	13,800	.....	.....	.....	CT-27	27	27	.....	.....	27	..
CT-37-1	22½	17,600	.....	.....	.....	CT-37	37	37	.....	.....	37	..
CT-47-1	32	20,100	.....	.....	.....	CT-47	47	47	.....	.....	47	..
CT-57-1	40½	22,000	.....	.....	.....	CT-57	57	57	.....	.....	57	..

FLANGE-JACKS



Operating with a minimum of effort, FLANGE-JACKS exert tremendous pressure smoothly and evenly. The flanges are parted quickly and held in perfect alignment without damage to flange faces.

There is no shock along the pipe line, no danger from flying wedges and no sparks are caused by hammer blows. FLANGE-JACKS eliminate costly shutdowns, making possible fast, economical repairs in hard-to-get-at locations.

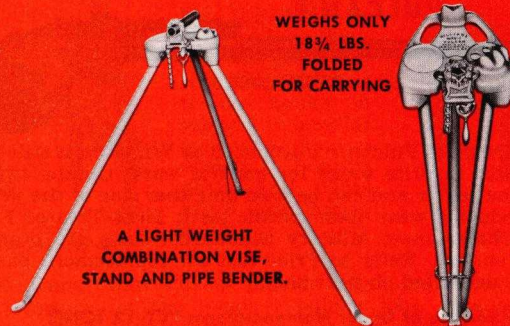
Technical data sheet covering Flange-Jacks capacities for all standard flange faces in various pipe classes and the dimensional limitations of special flanges available on request.

Table below indicates Flange-Jacks capacities for standard raised face flanges in widely used cast iron and steel pipe classes.

Example of Order Nomenclature: "FJ-20 JACKS"

No.	Capacity—Standard Raised Face Flanges				Weight Per Pair Lbs.
	125 lb. Cast Iron	150 lb. Steel	250 lb. Cast Iron	300 lb. Steel	
FJ-20	2" to 20"	2" to 20"	1" to 12"	3/4" to 12"	13.
FJ-30	16" to 48"	18" to 24"	12" to 30"	12" to 24"	45.

ALUMINUM VISE STAND No. CVS-1



Base is made from special aluminum alloy which has high tensile and high impact properties. Its heavily reinforced design prevents distortion under severe service. Recess for coil can, handy slots for tools and V-pipe support are provided.

Pipe Benders are provided in two sizes. One handles pipe up to 1/2 inch, the other handles pipe up to 3/4 inch.

Legs are 1-1/2" special aluminum alloy tubing. Upset feet are punched for fastening to floor, if desired. Legs may be folded and tied together with attached chain for easy carrying.

Vise is Vulcan® No. CV-1 described on this page. Entire assembly has satin aluminum finish.

Example of Order Nomenclature: "CVS-1 VISE STAND"

Vise Stand No.	For Pipe Sizes	Wgt. Ea., Lbs.	No. CV-1 Vulcan® Vise Parts			
			Jaws in Pairs	Chain with Screw	Chain Screw Only	Handle with Nut
CVS-1	1/8 to *2-1/2"	18.8				

WILLIAMS VULCAN®

DROP-FORGED CHAIN PIPE VISE



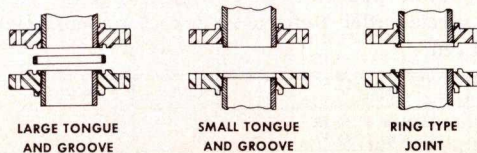
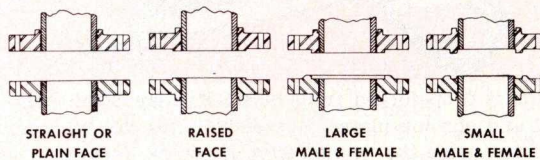
Adjustment is quickly effected by engaging the projecting rivets of the chain with a series of stepped bosses on the base. Drop-forged jaws are of saw-tempered steel for file-sharpening. The chains are of same quality as those of our Vulcan® Chain Pipe Tongs. Industrial gray finish.

FEDERAL SPEC:
GGG-V-415A-1, TYPE I, CLASS 1

No.	Pipe, Sizes	Wgt., Lbs.	Extra Parts			
			Jaws in Pairs	Chain with Screw	Chain Screw Only	Handle with Nut
CV-1	1/8 to *2-1/2"	4.				
CV-2	1/4 to 4	10.				
CV-3	1/4 to 6	18.				
CV-4	1/4 to 8	30.				

*Will grip fittings not larger in diam. than Std. 2-1/2" pipe (2-7/8" O.D.).

FLANGE-JACKS WILL SERVICE THESE TYPES OF FLANGE JOINTS AND FACINGS



8 C L A M P S AND LATHE TOOLS

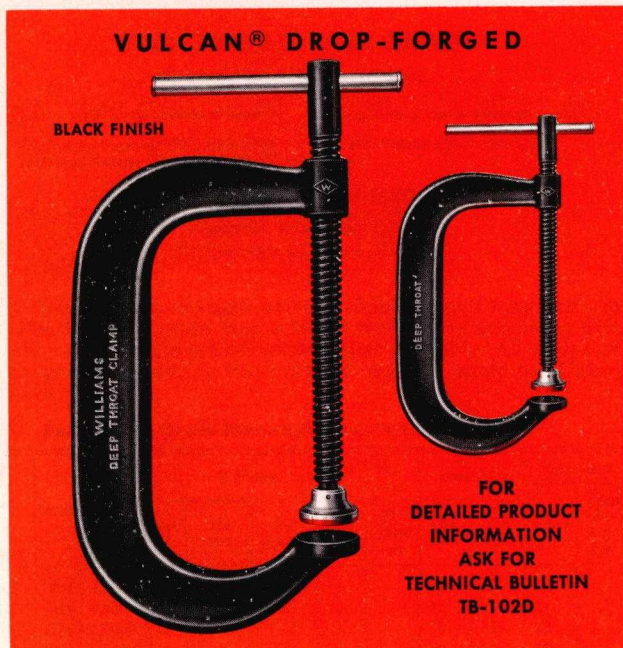
For technical information about these products

Ask for Technical Bulletin TB-102D which covers design features and competitive comparison of Williams C-Clamps. Also TB-114 on Tool Holders, TB-115 on Set-Up Tools and TB-116 on Carbide Tipped Single Point Bits.

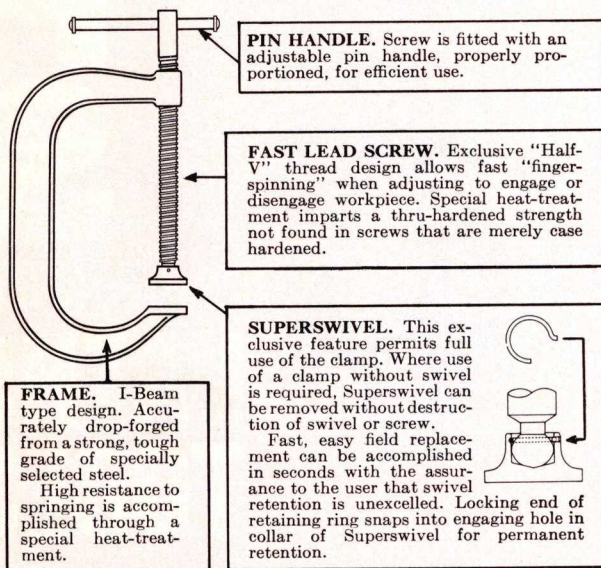


The safest tools are top quality tools that combine quality in design, materials and manufacture. With Williams tools you get this combination of features every time. Make Williams your standard of safety in hand and machine shop tools.

DEEP THROAT C-CLAMPS



This most popular style of C-Clamp is built with a number of exclusive features that cause it to be in high demand by an extremely wide range of industry. In addition to outstanding design features, Williams CC-400 Series Deep Throat C-Clamps are manufactured by methods and equipment that is unexcelled in the industry. The CC-400 Series is individually boxed in all sizes.

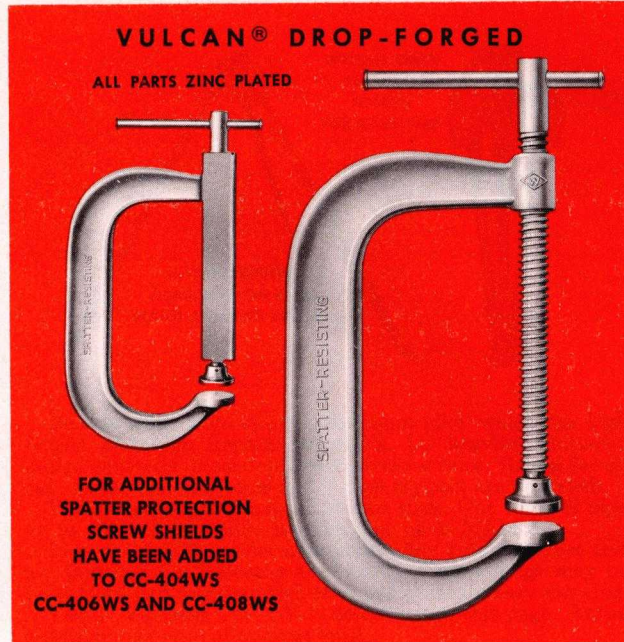


Example of Order Nomenclature: "CC-406 CLAMP"

FEDERAL SPEC: GGG-C-406D, TYPE I, CLASS A, STYLE 1, 2

No.	Capacity		Depth of Throat from Center of Screw	Extreme Body Dimensions		Screw		Wgt. Ea., Lbs.
	Max.	Min.		Length	Width	Diam.	Length Over All	
CC-402	2	0	2	4-7/8	3-3/4	1/2	4-13/16	1.3
CC-403	3	0	2-3/8	6-1/8	4-1/8	1/2	6	1.7
CC-404	4	0	2-3/4	7-5/8	4-3/4	3/4	8-3/16	2.9
CC-406	6	0	3-5/8	10-1/4	6	3/4	10-5/16	4.5
CC-408	8	0	4-1/2	12-3/4	7	3/4	12-3/4	7.0
CC-410	10	2	5-3/8	15-1/4	8-1/8	3/4	12-3/4	9.2
CC-412	12	4	5-3/4	18	9	7/8	13-1/16	13.0

WELDERS' DEEP THROAT C-CLAMPS



Frame, screw, swivel and pin are zinc plated to resist the adherence of welding spatter.

Nos. CC-404WS, CC-406WS and CC-408WS have the additional spatter protection of permanently attached screw shields that allow full adjustment of the screws.

Drop-forged from an unusually strong special steel and heat-treated for maximum strength, they combine dependable strength with minimum weight.

For full description see features listed in opposite column.

Example of Order Nomenclature:
"CC-403W CLAMP, CC-406WS CLAMP"

FEDERAL SPEC: GGG-C-406D, TYPE I, CLASS A, STYLE 1, 2

No.	Capacity		Depth of Throat from Center of Screw	Extreme Dimensions of Body		Screw		Wgt. Ea., Lbs.
	Max.	Min.		Length	Width	Diam.	Length Over All	
REGULAR WELDERS' C-CLAMPS								
CC-402W	2	0	2	4-7/8	3-3/4	1/2	4-13/16	1.3
CC-403W	3	0	2-3/8	6-1/8	4-1/8	1/2	6	1.7
CC-404W	4	0	2-3/4	7-5/8	4-3/4	3/4	8-3/16	3.1
CC-406W	6	0	3-5/8	10-1/4	6	3/4	10-5/16	4.8
CC-408W	8	0	4-1/2	12-3/4	7	3/4	12-3/4	7.4
CC-410W	10	2	5-3/8	15-1/4	8-1/8	3/4	12-3/4	9.2
CC-412W	12	4	5-3/4	18	9	7/8	13-1/16	13.0

WELDERS' C-CLAMPS WITH SCREW SHIELDS

CC-404WS	4	0	2-3/4	7-5/8	4-3/4	3/4	8-3/16	3.1
CC-406WS	6	0	3-5/8	10-1/4	6	3/4	10-5/16	4.8
CC-408WS	8	0	4-1/2	12-3/4	7	3/4	12-3/4	7.4

REPLACEMENT PARTS

Protect your C-Clamp investment by carrying a stock of replacement screws and swivels. You will be able to make immediate repairs to keep your C-Clamps in "safe-as-new" condition at all times, maintain efficiency, reduce accidents.

Example of Order Nomenclature:
"CC-404-1 SCREW, CC-406W-4 SWIVEL"

Screw Only With Handle			Superswivel Only With Ring			Screw Shield Only	
Number		Wgt.	Number		Wgt.	Number	Wgt.
Black	Zinc		For Black or Zinc			Zinc	
CC-402-1	CC-402W-1	.27	CC-402W-4		.06		
CC-403-1	CC-403W-1	.31	CC-403W-4		.06		
CC-404-1	CC-404W-1	.89	CC-404W-4		.19	CC-404W-5	.20
CC-406-1	CC-406W-1	1.2	CC-406W-4		.19	CC-406W-5	.30
CC-408-1	CC-408W-1	1.5	CC-408W-4		.19	CC-408W-5	.40
CC-410-1	CC-410W-1	1.5	CC-410W-4		.19		
CC-412-1	CC-412W-1	2.0	CC-412W-4		.25		



HEAVY SERVICE C-CLAMPS

VULCAN® DROP-FORGED



Williams Heavy Service C-Clamps are drop-forged from a strong, tough grade of carefully selected steel. Frames are specially heat-treated to further increase their strength and reduce the liability of springing.

Screws are made of a special grade of steel. A special heat-treatment imparts a thru-hardened strength and quality not found in screws that are merely case-hardened. Threads are standard Unified Coarse.

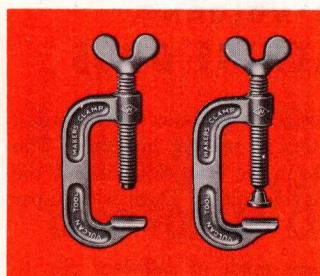
Where zero capacity is desired, clamps should be ordered with long screws.

Example of Order Nomenclature:
"CC-5 CLAMP, CC-3L CLAMP"

FEDERAL SPEC:
GGG-C-406D, TYPE I, CLASS D

No.	Capacity		Depth of Throat Center of Screw	Extreme Dimensions of Body		Screw		Wgt. Ea., Lbs.
	Max.	Min.		Lgth.	Width	Diam.	Lgth. Under Head	
CC-0A	3/4	0	3/4	2-1/4	2	3/8	1-1/2	.28
CC-1A	1-1/4	0	1-1/8	3-1/4	2-3/4	7/16	2-1/4	.69
CC-1-1/2A	1-3/4	0	1-1/2	4-3/8	3-5/8	5/8	2-7/8	1.7
CC-2A	2-1/4	3/4	1-3/4	5-1/2	4-1/2	3/4	3	3.3
CC-2LA	2-1/4	0	1-3/4	5-1/2	4-1/2	3/4	3-3/4	3.4
CC-3A	3-1/4	9/16	2-3/8	7-1/4	5-3/4	7/8	4-1/2	6.5
CC-3LA	3-1/4	0	2-3/8	7-1/4	5-3/4	7/8	5-3/8	6.6
CC-4A	4-1/2	2	2-3/4	9	6-1/2	1	4-1/2	10.2
CC-4LA	4-1/2	0	2-3/4	9	6-1/2	1	6-3/4	10.6
CC-5A	5-1/2	1-7/8	3-1/8	10-1/2	7	1	5-15/16	12.4
CC-5LA	5-1/2	0	3-1/8	10-1/2	7	1	9-1/16	12.9
CC-6	6-1/2	3	3-3/8	12	7-7/8	1	5-15/16	16.5
CC-6L	6-1/2	0	3-3/8	12	7-7/8	1	9-1/16	17.1
CC-8	8-1/2	4	3-3/4	14-3/8	8-1/2	1-1/8	7	24.
CC-8L	8-1/2	0	3-3/4	14-3/8	8-1/2	1-1/8	11-3/8	25.1
CC-10	10-1/2	6-1/4	4-1/8	16-7/8	9-1/8	1-1/8	7	28.
CC-10L	10-1/2	0	4-1/8	16-7/8	9-1/8	1-1/8	13-1/2	29.5
CC-12	12-1/2	7-1/2	4-1/2	19-3/8	9-7/8	1-1/4	8	40.
CC-12L	12-1/2	0	4-1/2	19-3/8	9-7/8	1-1/4	15-3/4	42.3

WILLIAMS VULCAN® DROP-FORGED TOOL-MAKERS C-CLAMPS



Drop-forged from a strong, tough grade of steel. Heat-treated after forging to reduce the liability of springing.

The Screws, drop-forged from a special grade of steel, hardened and tempered, are supplied in Swivel or Plain styles.

Example of Order Nomenclature:
"CC-203 CLAMP"

No.	Capacity		Depth of Throat	Extreme Dimensions		Screw		Wgt. Ea., Lbs.
	Max.	Min.		Lgth.	Width	Diam.	Lgth.	

WITH SWIVEL SCREW

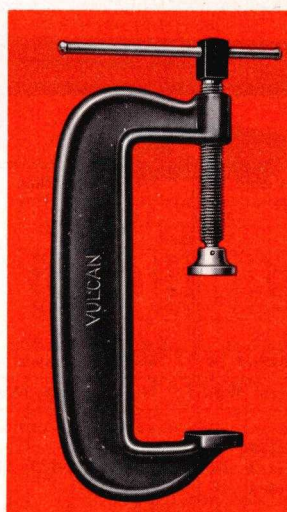
CC-201	3/4	0	11/16	2-1/8	1-1/2	5/16	1-11/16	.25
CC-202P	1-3/4	5/16	13/16	3-3/8	1-7/8	3/8	2-7/16	.33
CC-203	2-3/4	11/16	15/16	4-1/2	2-1/8	3/8	3-3/16	.56
CC-204	4	1-3/16	1-1/8	6-3/8	2-1/2	7/16	4-1/8	.90

WITH PLAIN SCREW

CC-201P	1	0	11/16	2-1/8	1-1/2	5/16	1-11/16	.25
CC-202P	2	5/16	13/16	3-3/8	1-7/8	3/8	2-7/16	.33
CC-203P	3	11/16	15/16	4-1/2	2-1/8	3/8	3-3/16	.56
CC-204P	4-1/4	1-3/16	1-1/8	6-3/8	2-1/2	7/16	4-1/8	.90

GENERAL SERVICE C-CLAMPS

VULCAN® DROP-FORGED



Frames are drop-forged and specially heat-treated in electronically controlled furnaces for increased strength and toughness. Finish, black nickel penetrate.

Screws are made of a special grade of steel. A special heat-treatment imparts a thru-hardened strength and quality not found in screws that are merely case-hardened. Threads are standard Unified Coarse. Williams exclusive Super-swivels, as described on opposite page, offer unexcelled retention. Clamps are individually boxed.

Example of Order Nomenclature:
"CC-108 CLAMP"

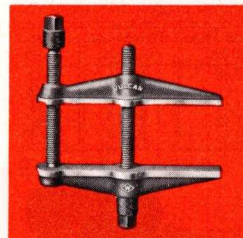
FEDERAL SPEC:
GGG-C-406D, TYPE I, CLASS B, STYLE 1

No.	Capacity		Depth of Throat from Center of Screw	Extreme Dimensions of Body		Screw		Wgt. Ea., Lbs.
	Max.	Min.		Lgth.	Width	Diam.	Overall Length Including Swivel	
CC-102	2	0	1-1/2	4-7/8	3-1/2	1/2	4-13/16	1.5
CC-103	3	0	2	6-7/8	4-3/8	5/8	6-5/8	2.8
CC-104	4	0	2-3/8	8-1/4	5-1/8	3/4	8-1/8	4.5
CC-106	6	2	2-1/2	10-3/8	5-3/8	3/4	8-1/8	5.8
CC-106L	6	0	2-1/2	10-3/8	5-3/8	3/4	10-1/8	6.0
CC-108	8	4	2-5/8	12-5/8	5-3/4	3/4	8-1/8	7.3
CC-108L	8	0	2-5/8	12-5/8	5-3/4	3/4	12-1/8	7.7
CC-110	10	6	2-3/4	14-7/8	5-7/8	3/4	8-1/8	7.9
CC-112	12	8	2-7/8	16-7/8	6	3/4	8-1/8	9.9
CC-115	15	10	3-1/16	20-1/4	6-1/2	7/8	9-11/16	14.1
CC-118	18	13	3-1/4	23-3/4	7	7/8	9-11/16	17.8

REPLACEMENT PARTS

HEAVY SERVICE		GENERAL SERVICE		TOOLMAKERS		
Standard Screws	Long Screws	Screw and Handle	Swivel and Ring	Plain Screw	Swivel Screw	Swivel
CC-0A-1	.....	CC-102-1	CC-102-4	CC-201P-1	CC-201-1	CC-201-2
CC-1A-1	.....	CC-103-1	CC-103-4	CC-202P-1	CC-202-1	CC-202-2
CC-1 1/2 A-1	.....	CC-104-1	CC-104-4	CC-203P-1	CC-203-1	CC-203-2
CC-2A-1	CC-2LA-1	CC-106-1	CC-106-4	CC-204P-1	CC-204-1	CC-204-2
CC-3A-1	CC-3LA-1	CC-106L-1	CC-106-4	MACHINISTS'		
CC-4A-1	CC-4LA-1	CC-108-1	CC-108-4	Center Screw		
CC-5A-1	CC-5LA-1	CC-108L-1	CC-108-4	End Screw		
CC-6-1	CC-6L-1	CC-110-1	CC-110-4	CC-301-1	CC-301-2	CC-301-2
CC-8-1	CC-8L-1	CC-112-1	CC-112-4	CC-302-1	CC-302-2	CC-302-2
CC-10-1	CC-10L-1	CC-115-1	CC-115-4	CC-303-1	CC-303-2	CC-303-2
CC-12-1	CC-12L-1	CC-118-1	CC-118-4	CC-304-1	CC-304-2	CC-304-2

WILLIAMS VULCAN® DROP-FORGED MACHINISTS' CLAMPS



Drop-forged from a strong, tough grade of steel and heat-treated to further increase strength and to reduce the liability of springing.

The knurled portion of the hardened and tempered Screws permits rapid and easy adjustment.

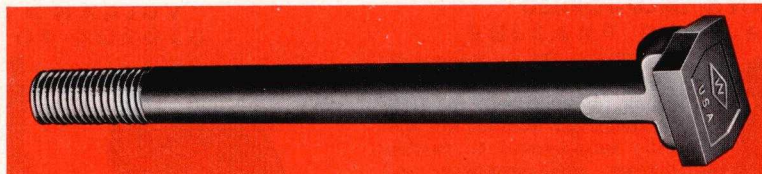
Edges of jaws are ground bright. When ordering extra Screws specify whether for end or center.

Example of Order Nomenclature: "CC-302 CLAMP"







No.	Capacity		Screws				Wgt. Ea., Lbs.
	Maximum Opening	Length Jaw from Screw	End		Center		
			Diam.	Lgth.	Diam.	Lgth.	
CC-301	1-1/4	1-3/4	5/16	2-1/8	5/16	2- 5/8	.6
CC-302	2-1/4	2-1/4	3/8	3-1/4	3/8	3-15/16	1.4
CC-303	3-1/4	2-3/4	7/16	4-5/8	7/16	5- 1/4	1.9
CC-304	4-1/4	3-1/4	1/2	5-3/4	1/2	6- 1/2	3.1

T-SLOT BOLTS

For setting up work on planers, shapers, milling machines. Threaded Unified Coarse. Will not turn in table or break out table slots.



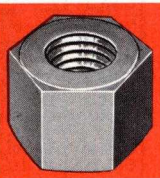
Lengths in table are under head in inches

3/8" T-Slot Size			1/2" T-Slot Size			5/8" T-Slot Size			3/4" T-Slot Size			7/8" T-Slot Size			1" T-Slot Size		
																	
Use HN-3 Hex Nut and W-3 Washer			Use HN-4 Hex Nut and W-4 Washer			Use HN-5 Hex Nut and W-5 Washer			Use HN-6 Hex Nut and W-6 Washer			Use HN-6 Hex Nut and W-6 Washer			Use HN-7 Hex Nut and W-7 Washer		
No.	Lgth.	Wgt.	No.	Lgth.	Wgt.	No.	Lgth.	Wgt.	No.	Lgth.	Wgt.	No.	Lgth.	Wgt.	No.	Lgth.	Wgt.
TS3-1	1	.05	TS4-1-1/4	1-1/4	.14	TS5-1-1/2	1-1/2	.27	TS6-2	2	.49	TS7-2-1/2	2-1/2	.74	TS8-3	3	1.1
TS3-1-1/4	1-1/4	.05	TS4-1-1/2	1-1/2	.16	TS5-2	2	.29	TS6-3	3	.60	TS7-3	3	.83	TS8-4	4	1.2
TS3-1-1/2	1-1/2	.06	TS4-2-1/4	1-3/4	.17	TS5-2-1/4	2-1/4	.32	TS6-4	4	.73	TS7-4	4	.96	TS8-5	5	1.4
TS3-1-3/4	1-3/4	.07	TS4-2-1/2	2-1/2	.21	TS5-2-1/2	2-1/2	.33	TS6-5-1/2	5-1/2	.91	TS7-5-1/2	5-1/2	1.1	TS8-6	6	1.6
TS3-2	2	.08	TS4-2-3/4	2-3/4	.22	TS5-3	3	.37	TS6-6	6	.96	TS7-6	6	1.2	TS8-7	7	1.8
TS3-2-1/4	2-1/4	.08	TS4-3	3	.24	TS5-3-1/2	3-1/2	.42	TS6-7	7	1.1	TS7-7	7	1.3	TS8-8	8	1.9
TS3-2-1/2	2-1/2	.09	TS4-4	4	.29	TS5-4	4	.47	TS6-8	8	1.2	TS7-8	8	1.4	TS8-9	9	2.2
TS3-3	3	.11	TS4-4-1/2	4-1/2	.31	TS5-4-1/2	4-1/2	.52	TS6-9	9	1.3	TS7-9	9	1.5	TS8-10	10	2.4
TS3-3-1/2	3-1/2	.12	TS4-5	5	.35	TS5-5	5	.56	TS6-10	10	1.4	TS7-10	10	1.7	TS8-12	12	2.6
TS3-4	4	.14	TS4-5-1/2	5-1/2	.38	TS5-5-1/2	5-1/2	.60	TS6-12	12	1.7	TS7-12	12	2.0	TS8-14	14	2.9
TS3-4-1/2	4-1/2	.15	TS4-6	6	.40	TS5-6	6	.64	TS6-14	14	1.9	TS7-14	14	2.1	TS8-16	16	3.3
TS3-5	5	.16	TS4-7	7	.44	TS5-7	7	.71	TS6-16	16	2.2	TS7-16	16	2.4	TS8-18	18	3.6
TS3-5-1/2	5-1/2	.18	TS4-8	8	.49	TS5-8	8	.75	TS6-18	18	2.4	TS7-18	18	2.6			
TS3-6	6	.19	TS4-9	9	.55	TS5-9	9	.87									
TS3-8	8	.26	TS4-10	10	.61	TS5-10	10	.96									
			TS4-12	12	.71	TS5-12	12	1.1									
						TS5-14	14	1.3									
						TS5-16	16	1.5									
						TS5-18	18	1.7									

HEXAGON NUTS

For use with Williams T-Slot Bolts. Threaded Unified Coarse and case hardened.

No.	Bolt Dia., In.	Threads Per In.	Thick-ness, In.	Across Flats, In.	Wgt. Each
HN-3	3/8	16	7/16	11/16	.04
HN-4	1/2	13	5/8	7/8	.09
HN-5	5/8	11	3/4	1-1/16	.14
HN-6	3/4	10	7/8	1-1/4	.24
HN-7	7/8	9	1	1-7/16	.34



SET-UP WEDGES

For use on planers, shapers, milling machines, etc.

No.	Length	Width	Thick End	Weight Ea., Lbs.
WG-3	3	1	1/4	.13
WG-5	5	1	1/2	.31
WG-6	6	1-1/4	3/4	.63



WILLIAMS VULCAN®

MILLING MACHINE DOGS



These are designed for taper work carried between centers on milling machines. The flat tail works in the head-slot without the back-lash unavoidable in Dogs with taper tail.

The heads are made of sufficient size to permit re-tapping for one or two larger sizes of screws as the threads wear. Screws are hardened and tempered.

Example of Order Nomenclature: "LD-44 DOG"

No.	Capacity	Screw		Wgt. Ea., Lbs.	Extra Screw No.
		Diameter	Length Under Head		
LD-42	1/2	3/8	1-1/4	.75	LD-42-3
LD-43	3/4	7/16	1-5/8	.93	LD-43-3
LD-44	1	1/2	2	1.2	LD-44-3
LD-45	1-1/4	1/2	2	1.3	LD-45-3
LD-46A	1-1/2	5/8	2-1/2	1.6	LD-46A-3
LD-47	1-3/4	5/8	2-1/2	1.8	LD-47-3
LD-48	2	5/8	2-7/8	2.1	LD-48-3

FLAT WASHERS

FOR T-SLOT BOLTS

Extra thick to resist bending with beveled edges on one side.







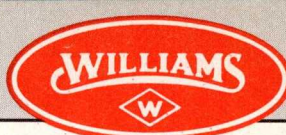
No.	Bolt Dia. Inches	Outside Dia. Inches	Thickness, Inches	Wgt. Each
W-3	3/8	7/8	1/8	.02
W-4	1/2	1	3/16	.03
W-5	5/8	1-1/4	1/4	.06
W-6	3/4	1-1/2	1/4	.06
W-7	7/8	1-3/4	1/4	.15

T-SLOT NUTS

For setting-up work on planers, shapers, milling machines, etc., where studs are to be used in place of T-Slot Bolts. Threaded Unified Coarse.



No.	T-Slot Size	Stud Diam.	Th'ds Per Inch					Wgt. Each
TN-5	5/8	1/2	13	1-1/8	13/32	1-1/4	3/4	.18
TN-6	3/4	5/8	11	1-5/16	17/32	1-1/2	7/8	.29
TN-7	7/8	3/4	10	1-1/2	9/16	1-3/4	1	.42
TN-8	1	7/8	9	1-3/4	5/8	2	1-1/8	.63
TN-10	1-1/4	1	8	2	7/8	2-3/8	1-11/32	1.1



DROP-FORGED LATHE DOGS

VULCAN®

REGULAR
SINGLE SCREW

HEAVY SERVICE — DOUBLE SCREW



Hollow Head



Square Head



Square Head

Hex Wrenches are supplied with LD-1A-1 through LD-8A-1 and LD-9-1 through LD-13-1.

The Screws are of special steel, hardened and tempered. They are supplied in two types, Hollow and Square Head, which are interchangeable in corresponding Dogs.

Example of Order Nomenclature: "LD-5A DOG"

Cap.	With Square Head Screw			With Hollow Head Screw			Wgt. Ea., Lbs.
	No.	Screw Diam.	Length Under Head	No. With Wrench	Screw Diam.	Overall Length	

REGULAR — SINGLE SCREW

FEDERAL SPEC: 00-D-565A, TYPE I, CLASS B, STYLE 1

3/8	LD-1A	5/16	1	LD-1A-1	5/16	5/8	.32
1/2	LD-2A	3/8	1-1/4	LD-2A-1	3/8	3/4	.56
3/4	LD-3A	7/16	1-5/8	LD-3A-1	7/16	7/8	1.
1	LD-4A	1/2	2	LD-4A-1	1/2	1	1.5
1-1/4	LD-5A	5/8	2	LD-5A-1	5/8	1-1/4	1.9
1-1/2	LD-6A	5/8	2-1/2	LD-6A-1	5/8	1-3/4	2.6
1-3/4	LD-7A	5/8	2-1/2	LD-7A-1	5/8	1-3/4	3.3
2	LD-8A	5/8	2-7/8	LD-8A-1	5/8	1-3/4	4.1
2-1/2	LD-9	1-1/8	3	LD-9-1	1-1/8	2	5.4
3	LD-10	1-1/4	3-1/4	LD-10-1	1-1/4	2-1/8	7.
3-1/2	LD-11	1-3/8	3-1/2	LD-11-1	1-3/8	2-1/2	10.
4	LD-12	1-1/2	3-3/4	LD-12-1	1-1/2	2-5/8	12.
5	LD-13	1-5/8	4-1/2	LD-13-1	1-5/8	3-3/8	20.

HEAVY SERVICE — DOUBLE SCREW

FEDERAL SPEC: 00-D-565A, TYPE I, CLASS B, STYLE 2

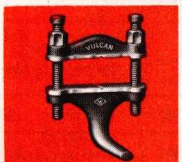
4	LD-112	1-1/2	3-3/4	.....	.....	.....	15.
5	LD-113	1-5/8	4-1/2	.....	.....	.....	21.5
6	LD-114	1-5/8	4-1/2	.....	.....	.....	30.7

REPLACEMENT PARTS

Screw Diam.	No. Square Head Screw	No. Hollow Head Screw	No. Hollow Head Wrench	Screw Diam.	No. Square Head Screw	No. Hollow Head Screw	No. Hollow Head Wrench
5/16	LD-1A-3	LD-1A-4	LD-1A-5	1-1/8	LD-9-3	LD-9-4A	LD-9-5A
3/8	LD-2A-3	LD-2A-4	LD-2A-5	1-1/4	LD-10-3	LD-10-4A	LD-10-5A
7/16	LD-3A-3	LD-3A-4	LD-3A-5	1-3/8	LD-11-3	LD-11-4A	LD-11-5A
1/2	LD-4A-3	LD-4A-4	LD-4A-5	1-1/2	LD-12-3	LD-12-4A	LD-12-5A
5/8	LD-5A-3	LD-5A-4	LD-5A-5	1-5/8	LD-13-3	LD-13-4A	LD-13-5A
5/8	LD-6A-3	LD-6A-4	LD-6A-5	1-1/2	.....	.....	.....
5/8	LD-7A-3	LD-7A-4	LD-7A-5	1-5/8	.....	.....	.....
5/8	LD-8A-3	LD-8A-4	LD-8A-5	1-5/8	.....	.....	.....

WILLIAMS VULCAN®

DROP-FORGED CLAMP LATHE DOGS



The Screws are made of a special grade of steel and are hardened and tempered. The Nuts are case hardened. Extra Screws and Nuts carried in stock.

The Nuts furnish ready means of arrangement for the minimum projection of Screws beyond the body of Dog and thus lessen the danger to the operator when tool is in use.

FEDERAL SPEC: 00-D-565A, TYPE II, CLASS B

No.	Capacity		Screws		Wgt. Ea., Lbs.	Replacement Parts	
	Max. Opening	Distance Between Screws	Diam.	Length Under Head		No. Screw Only	No. Nut Only
LD-61	1-5/8	1-3/4	5/16	2-3/4	.53	LD-61-3	LD-61-6
LD-62	1-7/8	2-1/4	3/8	3-5/16	.98	LD-62-3	LD-62-6
LD-63	2-1/2	2-3/4	7/16	4-1/4	1.8	LD-63-3	LD-63-6
LD-64	3-1/4	3-1/2	1/2	5-3/8	3.	LD-64-3	LD-64-6

DROP-FORGED STRAP CLAMPS

VULCAN®

Designed for long life, Williams Strap Clamps are available in several patterns.

On Planer, Lathe, Drill Press, Milling and Boring Machine work they are time-saving and effective.

PLAIN SLOT
PATTERN

No.	Lgth.	Width		Thickness		Slot; Nom. Dim.		Wgt. Ea.
		Ends	Center	Ends	Center	Length	Width	
SC-54	4	1-3/16	1-5/8	1/2	3/4	1-3/8	11/16	1.
SC-56	6	1-1/4	1-3/4	9/16	7/8	2-1/16	11/16	1.8
SC-58	8	1-1/2	2-1/8	3/4	1-1/8	2-13/16	13/16	3.8
SC-59	10	1-3/4	2-1/2	15/16	1-3/8	3-11/16	15/16	6.6

ADJUSTABLE STEP
PATTERN

No.	Lgth.	Width		Thickness		Slot; Nom. Dimensions		Screws		Wgt. Ea.	Extra Screw No.
		Ends	Center	Ends	Center	Lgth.	Width	Dia.	Lgth. Under Head		
SC-54A	4	1-3/16	1-5/8	1/2	3/4	1-3/8	11/16	1/2	1-1/4	1.1	SC-54A-1
SC-56A	6	1-1/4	1-3/4	9/16	7/8	2-1/16	11/16	5/8	1-1/2	2.	SC-56A-1
SC-58A	8	1-1/2	2-1/8	3/4	1-1/8	2-13/16	13/16	3/4	1-3/4	3.9	SC-58A-1
SC-59A	10	1-3/4	2-1/2	15/16	1-3/8	3-11/16	15/16	7/8	2-1/8	7.1	SC-59A-1

GOOSE NECK
PATTERN

No.	Lgth.	Width		Thickness		Slot; Nom. Dimensions		Neck Offset	Wgt. Ea.
		Ends	Center	Ends	Center	Length	Width		
SC-74	4	1-3/16	1-5/8	3/8 & 1/2	3/4	15/16	11/16	13/16	1.
SC-76	6	1-1/4	1-3/4	7/16 & 9/16	7/8	1-11/16	11/16	15/16	2.
SC-78	8	1-1/2	2-1/8	9/16 & 3/4	1-1/8	2-7/16	13/16	1-1/8	4.2

FINGER PATTERN
SINGLE END

No.	Lgth.	Width		Thickness		Slot; Nom. Dimensions		Finger Dimensions	Wgt. Ea.
		Flat End	Center	Flat End	Center	Length	Width		
SC-44	4	1-3/16	1-5/8	7/16	3/4	1-3/8	11/16	1/2 x 1/2	.83
SC-46	6	1-1/4	1-3/4	1/2	7/8	1-15/16	11/16	5/8 x 5/8	1.6
SC-48	8	1-1/2	2-1/8	5/8	1-1/8	2-9/16	13/16	3/4 x 3/4	3.3

FINGER PATTERN
DOUBLE END

No.	Length	Width Center	Thickness Center	Nom. Diameter Hole	Finger Dimensions	Wgt. Each
SC-30	3	1-1/2	5/8	11/16	1/2 x 1/2	.37
SC-35	3-1/2	1-5/8	3/4	11/16	5/8 x 5/8	.62
SC-40	4	1-13/16	7/8	13/16	3/4 x 3/4	.87

"U" PATTERN



No.	Length	Width	Thickness	Slot; Nom. Dimensions		Finger Dimensions	Wgt. Each
				Length	Width		
SC-64	4-1/2	1-3/4	3/4	3-1/2	11/16	1/2 x 1/2	1.
SC-66	6-5/8	2	7/8	5-1/2	11/16	5/8 x 5/8	2.
SC-68	8-3/4	2-1/2	1-1/8	7-3/8	13/16	3/4 x 3/4	4.
SC-110	10	2-3/4	1-1/4	9	15/16	15/16 x 15/16	5.8
SC-112	12	3-1/4	1-3/4	11	1-1/16	1-1/16 x 1-1/16	12.5

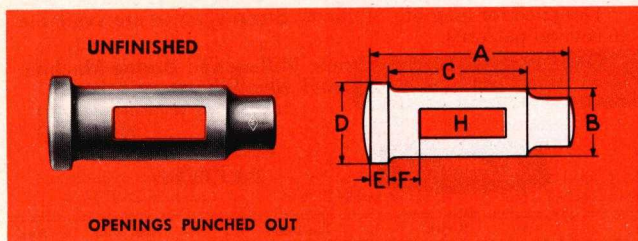
UNIVERSAL
ADJUSTABLE

Designed for holding work in planers, boring mills, drill presses, milling machines, etc. Ideal for irregular shapes and varying sizes. Position of the saddle may be changed to maintain vertical, right angle positioning of the tie-bolt.

No.	Length	Width of Clamp	Adjustment	Max. "T" Slot Bolt. Size Inches	Wgt. Each	Extra Saddles	
						No.	Wgt. Each
SC-21	5-1/16	1-5/8	2-1/4	5/8	1.3	SC-21S	.19
SC-22	8	2-1/8	4	3/4	3.1	SC-22S	.31
SC-23	12	2-3/4	6-1/4	1	9.8	SC-23S	.75

DROP-FORGED TOOL POSTS

VULCAN®



Head is neither drilled nor tapped.

No.	Over-all Lgth A	Body		Base		Base to Opng F	Opening Size H	For Use With		Wgt. Ea., Lbs.
		Diam B	Lgth C	Diam D	Thick E			Wedge	Ring	
TP-5	2 15/16	1 1/2	2	1 1/2	3/16	3/16	1 1/2 x 3/16	TPW-5	TPR-5	.5
TP-10	4 1/16	1 1/4	2 3/8	1 3/8	3/4	1/2	1 1/2 x 1 1/2	TPW-10	TPR-10	1.1
TP-20	4 9/16	1 3/8	3 1/4	2 1/8	3/16	1 1/2	1 1/2 x 1 1/2	15 & 18	TPR-11	2.2
TP-23	5	1 1/2	3 1/2	1 3/8	3/8	3/8	2 1/2 x 2 1/2	TPW-15	TPR-14	1.6
TP-28	5 3/16	1 3/8	3 11/16	2 1/16	3/8	3/8	2 1/2 x 1 1/2	15 & 18	TPR-18	2.2
TP-30	5 1/4	1 1/2	3 3/4	2 3/16	1/2	1 1/2	2 1/2 x 3/4	18 & 20	TPR-20	3.1
TP-40	6 5/16	2 1/8	4 3/8	2 3/8	3/8	1 3/8	2 1/2 x 3/8	30 & 40	TPR-40	4.7
TP-50	7 3/8	2 1/4	5	2 15/16	3/8	1 3/8	2 1/2 x 1 1/2	TPW-60	TPR-60	6.6
TP-60	8 3/4	2 3/8	6	3 3/8	3/4	1 1/2	3 3/8 x 1	.....	.....	14.2

WILLIAMS VULCAN®

DROP-FORGED TOOL POST RINGS



No.	Outside Diam.	Hole Diam.	Edge Thick.	Radius of Concave	For Use With		Wgt. Ea., Lbs.
					Post	Wedge	
TPR-5	2-1/4	1-1/16	3/8	3	TP-5	TPW-5	.30
TPR-10	2-15/16	1-5/16	7/16	2-7/8	TP-10	TPW-10	.65
TPR-11	3	1-5/8	7/16	4-5/8	TP-20	TPW-11 & 15	.56
TPR-14	3-3/16	1-7/16	5/8	4-5/8	TP-23	TPW-18 & 20	.94
TPR-18	3-7/16	1-9/16	11/16	4-1/2	TP-28	TPW-18	1.3
TPR-20	3-1/2	1-3/4	9/16	4-3/4	TP-30	TPW-18 & 20	.94
TPR-30	3-1/2	2	3/4	5-1/2	TP-40	TPW-30	1.3
TPR-40	4	2	3/4	5-3/4	TP-40	TPW-40	1.9
TPR-60	4-1/2	2-3/16	3/4	6	TP-50	TPW-60	2.3

WILLIAMS VULCAN®

DROP-FORGED TOOL POST WEDGES



No.	Length	Width Top	Width Extreme	Extreme Thick.	Radius	For Use With		Wgt. Ea., Lbs.
						Post	Ring	
TPW-5	2-13/32	13/32	1/2	11/32	3	TP-5	TPR-5	.08
TPW-10	3	9/16	21/32	31/64	2-7/8	TP-10	TPR-10	.19
TPW-11	3-3/8	1/2	19/32	25/64	4-5/8	TP-20	TPR-11	.13
TPW-15	3-3/8	5/8	23/32	7/16	4-5/8	TP-20	TPR-11	.19
TPW-18	3-7/8	11/16	3/4	15/32	4-1/2	TP-30	TPR-11 & 20	.25
TPW-20	3-7/8	11/16	13/16	17/32	4-3/4	TP-30	TPR-20	.30
TPW-30	4-3/8	3/4	7/8	1/2	5-1/2	TP-40	TPR-30	.36
TPW-40	4-7/8	13/16	15/16	21/32	5-3/4	TP-40	TPR-40	.56
TPW-60	5-1/4	15/16	1-3/32	3/4	6	TP-50	TPR-60	.78
TPW-65	5-5/16	7/8	1-1/32	29/32	5	.....	.....	.91

TURNING TOOL HOLDERS



Furnished with Bit and Wrench

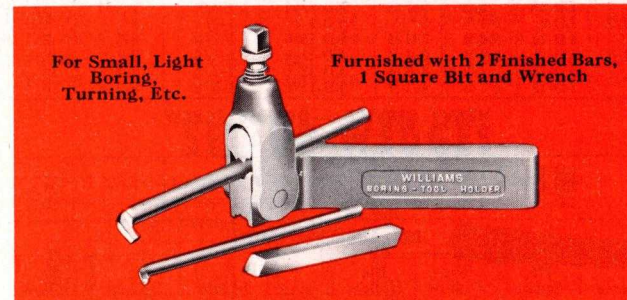
Holders have nose chamfered and are specially heat-treated and hardened. The cutter-holding channel provides a true and rigid seat for the cutter and assures a chatter-proof tool. High Speed Bits are furnished in a "diamond-point" form that requires a minimum of grinding.

FEDERAL SPEC: 00-H-581A, TYPE II, CLASS 1, 2, 3

Straight Shank	Offset Shank		Holder Size	Square Bit		For Lathes of Approx. Swing, Inches	Wgt. Ea., Lbs.
	Right Hand	Left Hand		Size	No.		
TH-000-S	TH-000-R	TH-000-L	5/16 x 1/2 x 4	3/16	2301	6 to 7	.31
TH-00-S	TH-00-R	TH-00-L	5/16 x 3/4 x 4-1/2	3/16	2301	7 to 10	.44
TH-0-S	TH-0-R	TH-0-L	3/8 x 7/8 x 5	1/4	2302	10 to 12	.67
TH-1-S	TH-1-R	TH-1-L	1/2 x 1-1/8 x 6	5/16	2303	14 to 16	1.3
TH-2-S	TH-2-R	TH-2-L	5/8 x 1-3/8 x 7	3/8	2304	16 to 18	2.1
TH-3-S	TH-3-R	TH-3-L	3/4 x 1-5/8 x 8	7/16	2305	18 to 20	3.3
TH-4-S	TH-4-R	TH-4-L	7/8 x 1-3/4 x 9	1/2	2306	24 to 36	4.8
TH-5-S	TH-5-R	TH-5-L	1 x 2 x 11	5/8	2307	.....	7.7
TH-6-S	TH-6-R	TH-6-L	1-1/4 x 2-1/4 x 13	3/4	2308	.....	12.2

WILLIAMS

LIGHT BORING TOOL HOLDERS



For Small, Light Boring, Turning, Etc.

Furnished with 2 Finished Bars, 1 Square Bit and Wrench

This Holder is very handy for all small work—not only in boring small diameters, threading, etc., but also in turning.

Boring. Each tool will hold a number of sizes of Bars; two, varying 1/8" in diameter, are supplied with each Holder. The solid Bars are High Speed Steel, hardened and ground.

Turning. The Holder, with offset shank, is reversible for right and left hand work. The self-adjusting gib allows the yoke to clear the end of the Holder. A hardened, High Speed Steel Square Bit with ends beveled to a "diamond-point" for easy grinding to desired form, is supplied with each tool.

FEDERAL SPEC: 00-H-581A, TYPE VI, CLASS 1, STYLE A

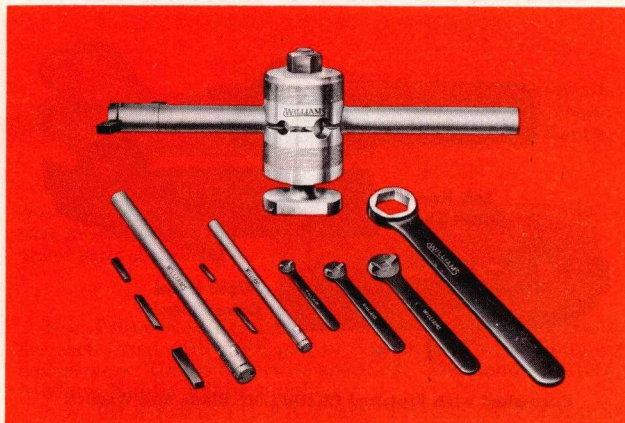
No.	Holder Size Shank	With Each Holder				For Lathes of Approx. Swing Inches	Wgt. Ea., Lbs.
		Two Bars		One Bit			
		Diam.	No.	Sq.	No.		
TH-15	3/8x 3/4x5	1/8 1/4	8140 8142	1/4	2302	9 to 10	.88
TH-16	1/2x1 x5-3/4	3/16 5/16	8141 8143	5/16	2303	11 to 14	1.6
TH-17	5/8x1-1/4x6-3/4	1/4 3/8	8142 8144	3/8	2304	14 to 16	2.8
TH-18	3/4x1-1/2x7-1/2	5/16 7/16	8143 8145	7/16	2305	16	4.6

EXTRA BORING BARS

No.	8140	8141	8142	8143	8144	8145
Size For	1/8 x 4	3/16 x 4-1/2	1/4 x 5	5/16 x 6	3/8 x 7	7/16 x 8
	TH-15 & 16	TH-15 to 17	TH-15 to 17	TH-15 to 18	TH-16 to 18	TH-17 & 18

See pages 116 and 117 for Bits for the above Tool Holders.

3-BAR BORING TOOL



Each Holder accommodates three sizes of Bars. Speedy changes can be made by a slight turn of one nut which releases or secures both Bar and Holder instantly. Speeds and feeds can be increased since this Holder allows the operator to use the strongest bar possible for each individual job.

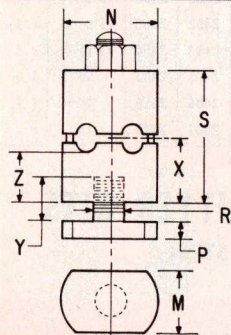
Each set includes zinc plated Holder; three Sleeve Bars each with one 45° and one 90° high speed bit and wrench; and one wrench for Holder nut.

FEDERAL SPEC: 00-H-581A, TYPE VI, CLASS 2, STYLE B

Note: Bolt head and bottom part of holder are made of ample size to allow for fitting which is necessary on account of the great variation in height of centers above slide rest and difference in sizes of T-slots. For standard dimensions and special finishing to individual machines see information below.

* 3/8 x 7" Solid Bar No. 8144

No.	For Lathes Swing In.	Diameter Bars	Length of Bars	Size Bits, Square	Wgt. Ea., Lbs.
TH-0-BB	8 to 10	* 3/8, 1/2, 3/4	* 7, 7 7/8, 11	* 3/16, 1/4, 5/16	5.2
TH-1-B	12 to 16	1/2, 3/4, 1 1/8	7 7/8, 11, 16	3/16, 1/4, 5/16	18.
TH-2-B	16 to 18	5/8, 1 1/8, 1 1/4	9 1/8, 13 1/4, 19	3/8, 1/2, 5/8	25.9
TH-3-B	20 to 22	3/4, 1 1/8, 1 1/2	11, 16, 23 1/4	1/2, 5/8, 3/4	42.4
TH-4-B	24 to 32	1 1/2, 1 3/4, 2	13 1/4, 19, 27 1/4	5/8, 3/4, 7/8	68.



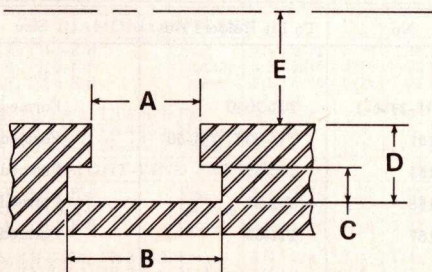
STANDARD DIMENSIONAL DATA AND SPECIAL MACHINING ORDER INFORMATION

Listed below are the standard dimensions of Williams 3-Bar Boring Tool Holders. Should the holder you order require special machining to fit a particular T-slot please furnish drawing and supply dimensions as indicated in sketch below.

No.	M	N	P	R	S	X	Y	Z
TH-0-BB	1-1/4	2	3/8	5/8	2-9/16	1-5/16	15/16	3/4
TH-1-B	2-1/2	3-1/8	9/16	1	3-7/8	2-1/8	1-15/16	1-3/8
TH-2-B	3	3-15/32	11/16	1-1/4	4-5/8	2-1/2	2-9/32	1-9/16
TH-3-B	3-9/16	4-1/4	13/16	1-1/4	5-1/16	2-27/32	2-7/8	1-15/16
TH-4-B	4	4-3/4	15/16	1-1/2	5-25/32	3-1/4	3-1/8	2-1/32

CENTERLINE OF SPINDLE

SUPPLY DIMENSIONS FOR T-SLOT AS INDICATED ON THIS DRAWING



BORING TOOL HOLDERS



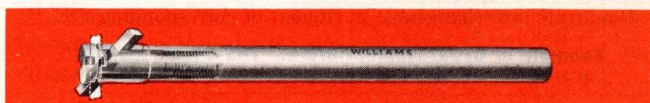
Furnished with either Sleeve or Plain Bar, 1 each 45° and 90° Bit and 2 Wrenches

Sleeves or bushings are unnecessary for Bars of various sizes. Sleeve-bar fastening provides for rapid adjustment of straight or angular Bits. Plain Bar provides for use of straight or angular Bits.

FEDERAL SPEC: 00-H-581A, TYPE VI, CLASS 1, STYLE B

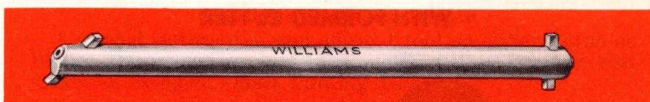
*Bar is held with single screw.

No. With		Holder Size	Capacity for Bars, Diam.	Standard Bars			Lathes Approx. Swing	Wgt. Ea., Lbs.
Sleeve Bar	Plain Bar			Dia.	Sleeve No.	Plain No.		
TH-00B	TH-00BX	5/16 x 3/4	3/16 to 1/2	1/2	TH-0B	TH-0BX	6 to 8	1.2
TH-8	TH-8X	3/8 x 7/8	1/4 to 5/8	5/8	TH-08	TH-08X	9 to 10	2.
TH-9	TH-9X	1/2 x 1 1/8	1/4 to 3/4	3/4	TH-09	TH-09X	11 to 14	3.3
TH-10	TH-10X	5/8 x 1 3/8	3/8 to 1 1/8	1 1/8	TH-10	TH-10X	14 to 16	6.6
TH-11	TH-11X	3/4 x 1 5/8	1/2 to 1 1/2	1 1/2	TH-11	TH-11X	16	11.
*TH-12	TH-12X	7/8 x 1 3/4	1 1/8 to 1 5/8	1 5/8	TH-12	TH-12X	18	16.



Furnished with Two Bits and Wrench

No.	Size	For Use with Holders Nos.	Square Bits		Wgt. Ea., Lbs.
			Size and Length	No. Use at Angles	
TH-0B	1/2 x 7 7/8	TH-00B thru TH-11 TH-0-BB and TH-1-B	3/16 x 1 3/16 x 2	2321 90° 2301 45°	.45
TH-08	5/8 x 9 1/8	TH-8 thru TH-11 TH-2-B	3/16 x 1 3/16 x 2	2321 90° 2301 45°	.91
TH-09	3/4 x 11	TH-9 thru TH-11 TH-0BB, TH-1-B, TH-3-B	1/4 x 1 1/2 1/4 x 2 1/2	2323 90° 2302 45°	1.5
TH-10	5/8 x 13 1/4	TH-10 and TH-11 TH-2-B and TH-4-B	3/8 x 1 1/2 3/8 x 2 1/2	2325 90° 2303 45°	2.9
TH-11	1 1/8 x 16	TH-11 TH-1-B and TH-3-B	3/8 x 1 1/2 3/8 x 3	2327 90° 2304 45°	4.9
TH-12	1 1/8 x 19	TH-12 TH-2-B and TH-4-B	3/8 x 2 1/2 3/8 x 3	2328 90° 2304 45°	7.6
TH-13	1 1/2 x 23 1/4	TH-3-B	3/8 x 2 1/2 3/8 x 3 1/2	2329 90° 2305 45°	12.1
TH-14	1 1/2 x 27 1/4	TH-4-B	3/8 x 2 1/2 3/8 x 4	2331 90° 2306 45°	20.4

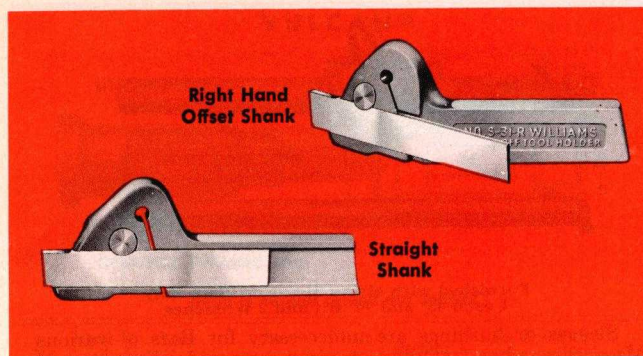


Furnished with Two Bits and Wrench

No.	Size	For Use with Holders Nos.	Square Bits		Wgt. Ea., Lbs.
			Size and Length	No. Use at Angles	
TH-0BX	1/2 x 8 1/8	TH-00BX thru TH-11X TH-0BB and TH-1-B	3/16 x 1 3/16 x 2	2321 90° 2301 45°	.44
TH-08X	5/8 x 10 1/8	TH-8X thru TH-11X TH-2-B	3/16 x 1 3/16 x 2	2321 90° 2301 45°	.88
TH-09X	3/4 x 12 1/8	TH-9X thru TH-11X TH-0BB, TH-1-B, TH-3-B	1/4 x 1 1/2 1/4 x 2 1/2	2323 90° 2302 45°	1.5
TH-10X	5/8 x 14 1/8	TH-10X and TH-11X TH-2-B and TH-4-B	3/8 x 1 1/2 3/8 x 2 1/2	2325 90° 2303 45°	2.8
TH-11X	1 1/8 x 16 3/4	TH-11X TH-1-B and TH-3-B	3/8 x 1 1/2 3/8 x 3	2327 90° 2304 45°	4.8
TH-12X	1 1/8 x 20	TH-12X TH-2-B and TH-4-B	3/8 x 2 1/2 3/8 x 3	2328 90° 2304 45°	7.5
TH-13X	1 1/2 x 23 1/2	TH-3-B	3/8 x 2 1/2 3/8 x 3 1/2	2329 90° 2305 45°	12.
TH-14X	1 1/2 x 28	TH-4-B	3/8 x 2 1/2 3/8 x 4	2331 90° 2306 45°	20.6

See pages 116 and 117 for Bits for the above Tool Holders.

SPRING CUTTING-OFF and SIDE HOLDERS



Furnished with Finished Cutting-off Blade and Wrench

Due to the "goose-neck" form of the Holder, Cutter Blade is relieved of excess pressure; no chattering, no "climbing" of the work on the tool—the real cause of nearly all breakage of cutting-off tools. Particularly efficient with automatic feed.

The cam-fastening is always rapid and positive—the greater the pressure the tighter the lock.

One Holder takes both Cutting-Off and Side Blades which are H.S. Steel, hardened and ground on one end ready for use. Blades are interchangeable in Holders of corresponding size.

Example of Order Nomenclature: "THS-31-R HOLDER"

FEDERAL SPEC: 00-H-581A, TYPE III, CLASS 1, 3, STYLE B

Number		Holder, Size	Cutter Blades High Speed Steel		For Lathes Approx. Swing Inches	Wgt. Ea., Lbs.
Straight Shank	Offset Shank Right Hand		Finished Size	No. Straight and Right		
HOLDERS WITH CUTTING-OFF BLADES						
.....	THS-30-RA	3/8 x 13/16	3/32 x 5/8	2402	9 to 10	.84
THS-20	THS-30-R	3/8 x 31/32	3/32 x 5/8	2402	9 to 10	.85
THS-21	THS-31-R	1/2 x 1-3/16	1/8 x 3/4	2403	11 to 14	1.6
THS-22	THS-32-R	5/8 x 1-3/8	1/8 x 7/8	2404	14 to 16	2.6
THS-23	THS-33-R	3/4 x 1-5/8	3/16 x 1	2405	16	4.1

See pages 116 and 117 for Bits and Blades for the above Tool Holders.

WILLIAMS
THREADING TOOL HOLDERS
 WITH FORMED CUTTER



Furnished with Finished Cutter and Wrench

In re-sharpening the Formed Cutter, it is necessary to grind its top edge only. The point will always retain proper form and angle. High Speed Formed Cutter is ground to an included angle of 60°.

Hardened stop screw provides accurate adjustment.

FEDERAL SPEC: 00-H-581A, TYPE IV, CLASS 1

No.	Holder, Size	Cutter, Size No.	For Lathes of Approx. Swing Inches	Weight Ea., Lbs.
TH-00-T	5/16 3/4 x 5	8151	7 to 10	.61
TH-50	3/8 7/8 x 5	8151	10 to 12	.80
TH-51	1/2 x 1-1/8 x 5-3/4	8153	14 to 16	1.3
TH-52	5/8 x 1-3/8 x 7	8155	16 to 18	2.3
TH-53	3/4 x 1-5/8 x 8	8157	18 to 20	3.3

CUTTING-OFF and SIDE TOOL HOLDERS



Furnished with Finished Cutting-off Blade and Wrench

The Cam-fastening is always rapid and positive—the greater the pressure, the tighter the lock.

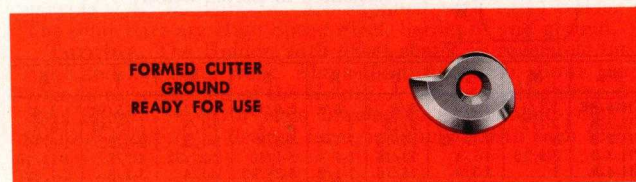
One Holder takes both Cutting-Off and Side Blades which are H.S. Steel, hardened and ground on one end ready for use. Blades are interchangeable in Holders of corresponding size.

Example of Order Nomenclature: "TH-19 HOLDER"

FEDERAL SPEC: 00-H-581A, TYPE III, CLASS 1, 2, 3, STYLE A

Number			Holder, Size	Cutter Blades High Speed Steel			For Lathes of Approx. Swing Inches	Wgt. Each, Lbs.
Straight Shank	Offset Shank			Finished Size	Strgt. and Right Hand No.	Left Hand No.		
	Right Hand	Left Hand						
HOLDERS WITH CUTTING-OFF BLADES								
TH-19	TH-29-R	TH-29-L	5/16x 13/16	3/32x 1/2	2401	2451	6 to 8	.47
TH-20	TH-30-R	TH-30-L	3/8 x 31/32	3/32x 5/8	2402	2452	9 to 10	.73
TH-21	TH-31-R	TH-31-L	1/2 x1-3/16	1/8 x 3/4	2403	2453	11 to 14	1.4
TH-22	TH-32-R	TH-32-L	5/8 x1-3/8	1/8 x 7/8	2404	2454	14 to 16	2.2
TH-23	TH-33-R	TH-33-L	3/4 x1-5/8	3/16x1	2405	2455	16	3.5
TH-24	TH-34-R	TH-34-L	7/8 x1-3/4	3/16x1-1/8	2406	2456	18	4.7
TH-25	TH-35-R	TH-35-L	7/8 x1-3/4	1/4 x1-1/8	2407	2457	18	5.

THREADING TOOL CUTTER BITS
 HIGH SPEED TOOL STEEL



FOR THREADING TOOL HOLDERS

No.	To Fit Holders Nos.	Size	Wgt. Ea.
TH-2050-1	TH-2050	Formed	.04
8151	TH-00T, TH-50	Formed	.04
8153	TH-51	Formed	.08
8155	TH-52	Formed	.17
8157	TH-53	Formed	.20

KNURLING TOOL HOLDERS



Nos. TH-00-K to TH-2-K
with Self-centering Head
and One Pair of Knurls.

Nos. TH-3-K-0 to TH-3-K-2
with Revolving Head and
Three Pairs of Knurls.



Nos. TH-00-K to TH-2-K, with sturdy, self-centering heads, are each fitted with ONE pair of Knurls for fine, medium, or coarse work. Unless otherwise specified, "Diamond" Pattern, Medium Knurls will be supplied.

Nos. TH-3-K-0 to TH-3-K-2 carry THREE pairs of Knurls for fine, medium and coarse work. Pins are of tempered Tool Steel.

Example of Order Nomenclature:

"TH-1-K HOLDER with COARSE DIAMOND KNURLS"

FEDERAL SPEC: 00-H-581A, TYPE V, CLASS 1, 2

No.	Holder, Size	Knurls, Size			For Lathes of Approx. Swing, In.	Wgt. Ea., Lbs.
		Diam.	Face	Hole		
SELF-CENTERING HEAD—ONE PAIR OF KNURLS						
TH-00-K	5/16 x 3/4 x 5	5/8	3/16	7/32	7 to 10	.53
TH-0-K	3/8 x 7/8 x 5-1/2	5/8	3/16	7/32	10 to 12	.63
TH-1-K	1/2 x 1-1/8 x 6-5/8	3/4	1/4	1/4	14 to 16	1.3
TH-2-K	5/8 x 1-3/8 x 7-1/2	3/4	1/4	1/4	16 to 18	1.9
REVOLVING HEAD—THREE PAIRS OF KNURLS						
TH-3-K-0	3/8 x 7/8 x 5-1/2	5/8	3/16	7/32	10 to 12	1.
TH-3-K-1	1/2 x 1-1/8 x 6-5/8	3/4	1/4	1/4	14 to 16	1.8
TH-3-K-2	5/8 x 1-3/8 x 6-5/8	3/4	1/4	1/4	16 to 18	2.2

WILLIAMS

KNURLS for KNURLING TOOL HOLDERS

DIAMOND PATTERN



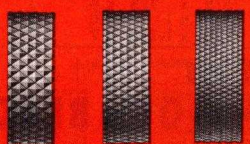
Coarse 13 Pitch
Medium 20 Pitch
Fine 33 Pitch

STRAIGHT-LINE PATTERN



Coarse 13 Pitch
Medium 20 Pitch
Fine 35 Pitch

Note: "Pitch" means number of teeth per linear inch.



Illustrations above show actual size of Knurling

Williams Knurls being accurately cut, assure sharp and perfect teeth in the knurled product. All Knurls are made from high speed steel and are specially hardened and tempered.

Furnished in pairs to fit standard makes of Knurling Tools.

FEDERAL SPEC: 00-H-581A, TYPE V, CLASS 1, 2

Knurl No.	For Knurling Tool No.	Pitch	Knurls, Size				Wgt. Per Pair
			Dia.	Thick- ness	Face	Hole	
DIAMOND PATTERN							
8227	TH-00-K, TH-0-K, TH-3-K-0	Fine	5/8	5/16	3/16	7/32	.05
8224	TH-00-K, TH-0-K, TH-3-K-0	Medium	5/8	5/16	3/16	7/32	.05
8221	TH-00-K, TH-0-K, TH-3-K-0	Coarse	5/8	5/16	3/16	7/32	.05
8228	TH-1-K, TH-2-K, TH-3-K-1, TH-3-K-2	Fine	3/4	3/8	1/4	1/4	.08
8225	TH-1-K, TH-2-K, TH-3-K-1, TH-3-K-2	Medium	3/4	3/8	1/4	1/4	.08
8222	TH-1-K, TH-2-K, TH-3-K-1, TH-3-K-2	Coarse	3/4	3/8	1/4	1/4	.08
STRAIGHT-LINE PATTERN							
8267	TH-00-K, TH-0-K, TH-3-K-0	Fine	5/8	5/16	3/16	7/32	.05
8264	TH-00-K, TH-0-K, TH-3-K-0	Medium	5/8	5/16	3/16	7/32	.05
8261	TH-00-K, TH-0-K, TH-3-K-0	Coarse	5/8	5/16	3/16	7/32	.05
8268	TH-1-K, TH-2-K, TH-3-K-1, TH-3-K-2	Fine	3/4	3/8	1/4	1/4	.08
8265	TH-1-K, TH-2-K, TH-3-K-1, TH-3-K-2	Medium	3/4	3/8	1/4	1/4	.08
8262	TH-1-K, TH-2-K, TH-3-K-1, TH-3-K-2	Coarse	3/4	3/8	1/4	1/4	.08

EXTENSION SHAPER TOOLS

The design and extreme rigidity of this Shaper Tool adapts it for cutting internal keyways, die work or any type of shaper work where extra clearance is needed.

FEDERAL SPEC:
00-H-581A, TYPE VIII



Furnished with
Bar, Bit and Wrenches

No.	Holder, Size	Size Bar	Bar No.	Bit Square	Bit No.	Weight Ea., Lbs.
*TH-46	3/8 x 7/8	1/2 x 7-1/2	TH-0530	3/16	2321	1.1
TH-47	1/2 x 1-1/8	3/4 x 10	TH-0597	5/16	2325	3.3
TH-48	5/8 x 1-3/8	15/16 x 12	TH-0598	3/8	2327	6.

*Instead of split collar, as illustrated, bar is held by two hollow set screws.

EXTRA BARS and BUSHINGS

Each Bar furnished with High Speed Bit and Wrench

Bar No.	Size Bar	Square Bit		Wgt. Ea., Lbs.	Order Bushing No.	Fits Holder No.	Wgt. Ea., Lbs.
		Size	No.				
TH-0530	1/2 x 7-1/2	3/16	2321	.75	TH-0530-A TH-0530-B	*TH-46 TH-47 TH-48	.13 .31
TH-0532	5/8 x 8-1/2	1/4	2323	1.1	TH-0532-A TH-0532-B	TH-47 TH-48	.06 .25
TH-0597	3/4 x 10	5/16	2325	1.6	TH-0597-A	*TH-47 TH-48	.19
TH-0598	15/16 x 12	3/8	2327	2.7	.....	*TH-48	.....

*No Bushing Required

WILLIAMS

PLANING TOOL HOLDERS



This construction affords most ready
release of Bit for easy adjustment.



The serrations in Holder provide maxi-
mum number of Bit adjustments.

Furnished with Bit and Wrench

A rugged, substantial and efficient tool on either Lathe or Planer. Because of its numerous angles of adjustment it also makes an excellent Offset Turning Tool.

The construction assures perfect seat and holding qualities for the Bits; the convex face of Clamp Nut provides uniform locking pressure for Bits of either square or rectangular form; the numerous serrations in Holder provide for quick, fine and maximum number of Bit adjustments.

The serrated washer, or Adjustment Ring, which sustains the fastening and working strains, is hardened and tempered.

FEDERAL SPEC: 00-H-581A, TYPE VII

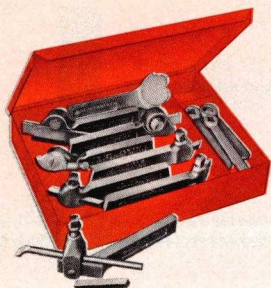
No.	Holder, Size	Bit, Size	Cutter No.	Weight Ea., Lbs.
TH-40	1/2 x 1 x 7	1/4 x 3/8	2351	2.2
TH-401	5/8 x 1-1/4 x 8-1/2	5/16 x 7/16	2352	3.8
TH-41	3/4 x 1-1/2 x 10-1/4	3/8 x 1/2	2353	6.
TH-42	1 x 1-3/4 x 13-1/4	1/2 x 3/4	2354	11.1
TH-43	1-3/8 x 2 x 16-1/2	5/8 x 7/8	2355	20.6
TH-44	1-3/4 x 2-3/8 x 19	3/4 x 1	2356	31.
TH-45	2-1/8 x 2-3/4 x 22	7/8 x 1-1/8	2357	53.

See pages 116 and 117 for Bits for the above Tool Holders.



SEVEN-TEN TOOL HOLDERS

FOR USE ON LATHES WITH 7 to 10 INCH SWING



SET No. TH-8H

8 Tool Holders
and 3 Wrenches

In Metal Box
9-3/8 x 7-1/4 x 1-3/4"
Weight, 7 lbs.

Holders are also sold
individually.

Shanks are drop-forged from selected steel and hardened. Nose of the Holders is chamfered for use in cramped quarters. All H.S. Steel Bits and Blades are ground ready for use.

The Threading-Tool Holder is supplied with a Formed Cutter, the point of which is ground to an included angle of 60°. In re-sharpening it is necessary to grind the top edge only.

The Boring-Tool is furnished with Bar 1/4" round by 5" long, with point offset and ground and a 1/4" square bit.

Note: Knurling Tool is fitted with 8224 Medium Diamond Knurls only. Holder will take replacement Knurls as follows:—Diamond, 8227 Fine, 8221 Coarse—Straight Line, 8267 Fine, 8264 Medium, 8261 Coarse.

CONTENTS

No.	Tool Holder	Shank	Bits and Blades		Wgt.
			Size	No.	
TH-2010-S	Turning—Straight Shank	3/8 x 13/16	1/4 Sq.	2302	.63
TH-2010-R	Turning—R. H. Offset Shank	3/8 x 13/16	1/4 Sq.	2302	.64
TH-2010-L	Turning—L. H. Offset Shank	3/8 x 13/16	1/4 Sq.	2302	.64
TH-2040	Knurling—with Diamond Med. Knurls	3/8 x 3/4	Medium	8224	.59
TH-2020-S	Cut-Off—R. H. Straight Shank	3/8 x 13/16	3/32 x 5/8	2402	.63
TH-2020-R	Cut-Off—R. H. Offset Shank	3/8 x 13/16	3/32 x 5/8	2402	.69
TH-2050	Threading—with Formed Cutter	3/8 x 3/4	Formed	TH-2050-1	.66
TH-2030	Boring—Reversible—R. or L.	3/8 x 3/4	1/4 Sq.	2302	.88
			1/4 rd. x 5	8142	

WILLIAMS SEVEN-TEN FINISHED BITS



1
Left
Hand
Turning

2
Round
Nose
Turning

3
Right
Hand
Turning

5
Thread-
ing
Tool

6
Right
Hand
Corner

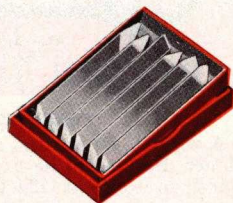
10
Brass
Tool

SET No. TH-6-HC
In Cardboard Box

Weight, .25 lbs.

Made especially for use with Seven-Ten Tool Holders listed above.

Sold In Set Only



Seven-Ten Bits are made of 1/4" square High Speed Steel, carefully ground to shape and hardened. Set of six Bits cares for practically all lathe needs of school and home workers.

WILLIAMS SEVEN-TEN LATHE DOGS

Williams "Seven-Ten" Dogs are drop-forged, not cast, and consequently, are light but unusually strong and durable.

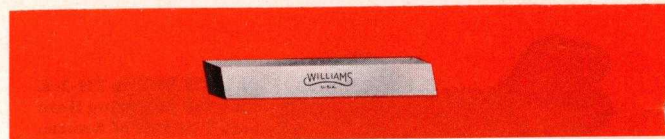
Made especially for home lathe work; screws are hardened for lasting service.

*Opening in each Dog 1/16" over listed "Capacity" to easily accommodate rough or irregular pieces.



No.	*Capacity	Extra Screw No.	Wgt. Ea., Lbs.
LD-72A	1/2	LD-72A-3	.28
LD-73A	3/4	LD-73A-3	.50
LD-74A	1	LD-74A-3	.91
LD-76A	1-1/2	LD-76A-3	1.1

GROUND SQUARE BITS



For Turning and Light Boring Tool Holders

Example of Order Nomenclature: "2378 BIT"

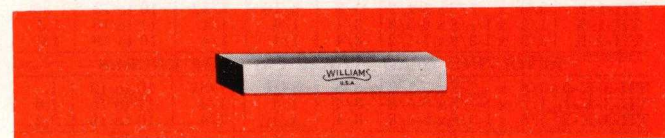
FEDERAL SPEC:

00-C-851A, TYPE I, STYLE 1, GRADE A, FINISH A, CLASS M-2 (H.S.)

00-C-851A, TYPE I, STYLE 1, GRADE B, FINISH A, CLASS M-34 (COBALT)

No.	High Speed	Cobalt	To Fit Holders Nos.		Bit Size	Wgt. Ea., Lbs.
			Turning	Boring		
2376	2388		TH-000-L, TH-000-R, TH-000-S		3/16 x 3/16 x 2-1/2	.02
2376	2388		TH-00-L, TH-00-R, TH-00-S		3/16 x 3/16 x 2-1/2	.02
2377	2389		TH-0-L, TH-0-R, TH-0-S	TH-2030	1/4 x 1/4 x 2-1/2	.03
2377	2389		TH-2010-L, 2010-R, 2010-S	TH-15	1/4 x 1/4 x 2-1/2	.03
2378	2390		TH-1-L, TH-1-R, TH-1-S	TH-16	5/16 x 5/16 x 2-1/2	.07
2379	2391		TH-2-L, TH-2-R, TH-2-S	TH-17	3/8 x 3/8 x 3	.12
2380	2392		TH-3-L, TH-3-R, TH-3-S	TH-18	7/16 x 7/16 x 3-1/2	.19
2381	2393		TH-4-L, TH-4-R, TH-4-S		1/2 x 1/2 x 4	.29
2382	2394		TH-5-L, TH-5-R, TH-5-S		5/8 x 5/8 x 4-1/2	.50
2383	2395		TH-6-L, TH-6-R, TH-6-S		3/4 x 3/4 x 5	.81
2384	2396				7/8 x 7/8 x 6	1.3
2385	2397				1 x 1 x 7	2.

WILLIAMS GROUND RECTANGULAR BITS



For Planing Tool Holders

Example of Order Nomenclature: "2708 BIT"

No.	High Speed	Cobalt	To Fit Holders Nos.	Bit Size		Wgt. Ea., Lbs.
2701	2731		TH-40	1/4 x 3/8 x 2-1/2		.08
2704	2734		TH-40	1/4 x 1/2 x 6		.22
2706	2736		TH-401	5/16 x 7/16 x 3		.13
2708	2738		TH-41	3/8 x 1/2 x 3		.17
2710	2740		TH-41	3/8 x 1/2 x 6		.33
2711	2741		TH-41	3/8 x 5/8 x 4		.27
2714	2744		TH-41	3/8 x 3/4 x 4		.33
2718	2748		TH-42	1/2 x 3/4 x 4		.44
2719	2749		TH-42	1/2 x 3/4 x 6		.65
2722	2752		TH-43	5/8 x 7/8 x 6		.94
2723	2753		TH-44	3/4 x 1 x 6		1.3
2724	2754		TH-45	7/8 x 1-1/8 x 7		2.

WILLIAMS GROUND CUTTING-OFF BLADES



For Straight, Right and Left Hand Cutting-Off Tool Holders

*Blades must be ground on opposite end for Left Hand use.

FEDERAL SPEC:

00-C-851A, TYPE II, STYLE 2, GRADE A, FINISH A, CLASS M-2 (H.S.)

00-C-851A, TYPE II, STYLE 2, GRADE B, FINISH A, CLASS M-34 (COBALT)

No.	High Speed	Cobalt	Straight and Right Hand		*Left Hand	Blade Size	Wgt. Ea., Lbs.
			To Fit Holders Nos.				
			Cutting-Off	Spring Cut-Off	Cut-Off		
2410	2540		TH-19, TH-29-R		TH-29-L	3/32 x 1/2 x 4-1/2	.05
2411	2541		TH-20, TH-30-R	THS-30-RA	TH-30-L	3/32 x 5/8 x 5	.07
2411	2541		TH-2020-S&R	THS-20, THS-30-R	TH-30-L	3/32 x 5/8 x 5	.07
2412	2542		TH-21, TH-31-R	THS-21, THS-31-R	TH-31-L	1/8 x 3/4 x 5	.10
2413	2543		TH-22, TH-32-R	THS-22, THS-32-R	TH-32-L	1/8 x 7/8 x 6	.15
2414	2544		TH-23, TH-33-R	THS-23, THS-33-R	TH-33-L	3/16 x 1 x 6-1/2	.27
2415	2545		TH-24, TH-34-R		TH-34-L	3/16 x 1-1/8 x 7	.34
2416	2546		TH-25, TH-35-R		TH-35-L	1/4 x 1-1/8 x 7	.46
2417	2547					1/4 x 1-3/8 x 7	.54

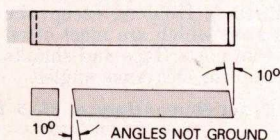


HIGH-SPEED TOOL BITS

Made from selected tool steel of a grade which has excellent properties for general machining use. All are heat-treated to

combine maximum hardness and high wear-resistant properties for greatest cutting efficiency. Surfaces are unground.

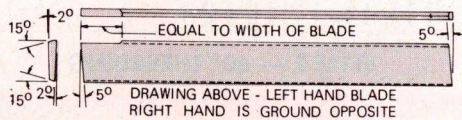
FOR TURNING and LIGHT BORING TOOL HOLDERS



FEDERAL SPEC:
00-C-851A, TYPE I, STYLE I, GRADE A, FINISH B, CLASS M-2

No.	To Fit Tool Holders Nos.		Bit Size	Wgt. Ea.
	Turning	Boring		
2301	TH-000-L, TH-000-R, TH-000-S	.....	3/16x3/16x2	.02
2301	TH-00-L, TH-00-R, TH-00-S	.....	3/16x3/16x2	.02
2302	TH-0-L, TH-0-R, TH-0-S	TH-2030	1/4 x 1/4 x 2-1/2	.05
2302	TH-2010-L, TH-2010-R, TH-2010-S	TH-15	1/4 x 1/4 x 2-1/2	.05
2303	TH-1-L, TH-1-R, TH-1-S	TH-16	5/16x5/16x2-1/2	.07
2304	TH-2-L, TH-2-R, TH-2-S	TH-17	3/8 x 3/8 x 3	.13
2305	TH-3-L, TH-3-R, TH-3-S	TH-18	7/16x7/16x3-1/2	.20
2306	TH-4-L, TH-4-R, TH-4-S	.....	1/2 x 1/2 x 4	.30
2307	TH-5-L, TH-5-R, TH-5-S	.....	5/8 x 5/8 x 4-1/2	.52
2308	TH-6-L, TH-6-R, TH-6-S	.....	3/4 x 3/4 x 5	.83

FOR STRAIGHT, RIGHT and LEFT HAND CUTTING-OFF TOOL HOLDERS



FEDERAL SPEC:
00-C-851A, TYPE II, STYLE 2, GRADE A, FINISH B, CLASS M-2

Straight and Right Hand			Left Hand		Blade Size	Wgt. Ea., Lbs.
To Fit Tool Holders Nos.						
No.	Cutting-Off	Spring Cut-Off	No.	Cut-Off		
2401	TH-19, TH-29-R	.....	2451	TH-29-L	3/32x 1/2x4-1/2	.05
2402	TH-20, TH-30-R	THS-30-RA	.....	.....	3/32x 5/8x5	.07
2402	TH-2020-S&R	THS-20, THS-30-R	2452	TH-30-L	3/32x 5/8x5	.07
2403	TH-21, TH-31-R	THS-21, THS-31-R	2453	TH-31-L	1/8 x 3/4x5	.10
2404	TH-22, TH-32-R	THS-22, THS-32-R	2454	TH-32-L	1/8 x 7/8x6	.15
2405	TH-23, TH-33-R	THS-23, THS-33-R	2455	TH-33-L	3/16x1 x6-1/2	.27
2406	TH-24, TH-34-R	.....	2456	TH-34-L	3/16x1-1/8x7	.34
2407	TH-25, TH-35-R	.....	2457	TH-35-L	1/4 x1-1/8x7	.46

FOR BORING and SHAPER BARS

No.	To Fit Bar Nos.	Angle of Use	Bit Size	Wgt. Ea.
2321	TH-0B, TH-0BX, TH-0S, TH-0SX, TH-0530	90°	3/16 x 3/16 x 1	.01
2301	TH-0B, TH-0BX, TH-0S, TH-0SX	45°	3/16 x 3/16 x 2	.02
2323	TH-09, TH-09X, TH-0532	90°	1/4 x 1/4 x 1-7/32	.02
2302	TH-09, TH-09X	45°	1/4 x 1/4 x 2-1/2	.05
2325	TH-010, TH-010X, TH-0597	90°	5/16 x 5/16 x 1-7/16	.04
2303	TH-010, TH-010X	45°	5/16 x 5/16 x 2-1/2	.07
2327	TH-011, TH-011X, TH-0598	90°	3/8 x 3/8 x 1-13/16	.07
2304	TH-011, TH-011X	45°	3/8 x 3/8 x 3	.13
2328	TH-012, TH-012X	90°	3/8 x 3/8 x 2-1/16	.08
2304	TH-012, TH-012X	45°	3/8 x 3/8 x 3	.13
2329	TH-013, TH-013X	90°	7/16 x 7/16 x 2-3/16	.11
2305	TH-013, TH-013X	45°	7/16 x 7/16 x 3-1/2	.20
2331	TH-014, TH-014X	90°	1/2 x 1/2 x 2-1/2	.19
2306	TH-014, TH-014X	45°	1/2 x 1/2 x 4	.30

FORMED CUTTER
GROUND
READY FOR USE



FOR THREADING TOOL HOLDERS

No.	To Fit Holders Nos.	Size	Wgt. Ea.
TH-2050-1	TH-2050	Formed	.04
8151	TH-00T, TH-50	Formed	.04
8153	TH-51	Formed	.08
8155	TH-52	Formed	.17
8157	TH-53	Formed	.20

FOR PLANING TOOL HOLDERS

No.	To Fit Holders Nos.	Bit Size	Wgt. Ea.
2351	TH-40	1/4 x 3/8 x 2-1/2	.06
2352	TH-401	5/16 x 7/16 x 3	.10
2353	TH-41	3/8 x 1/2 x 3-1/2	.18
2354	TH-42	1/2 x 3/4 x 4-1/4	.45
2355	TH-43	5/8 x 7/8 x 5	.79
2356	TH-44	3/4 x 1 x 6	1.3
2357	TH-45	7/8 x 1-1/8 x 7	2.

8

CLAMPS AND LATHE TOOLS

CARBIDE TURNING TOOL HOLDERS

FOR USE WITH CARBIDE TIPPED SINGLE POINT BITS



Furnished with Wrench but without Bit

In these holders the bit is held parallel to the shank, consequently, bits can be so ground as to provide maximum support for the cutting edge. Holders are broached for square bits up to 5/8" as listed on this page.

FEDERAL SPEC: 00-H-581A, TYPE I, CLASS 1, 2, 3

Number			Holder, Size	Bit Shank Size, Square	For Lathes of Approx. Swing, In.	Wgt. Ea., Lbs.
Straight Shank	Offset Shank					
	Right	Left				
THT-0-S	THT-0-R	THT-0-L	3/8 x 15/16 x 6	1/4	9 to 10	.71
THT-1-S	THT-1-R	THT-1-L	1/2 x 1-1/4 x 7	5/16	11 to 14	1.5
THT-2-S	THT-2-R	THT-2-L	5/8 x 1-1/2 x 8	3/8	14 to 16	2.4
THT-3-S	THT-3-R	THT-3-L	3/4 x 1-3/4 x 9	7/16	16	3.7
THT-4-S	THT-4-R	THT-4-L	7/8 x 1-7/8 x 10	1/2	18	5.
THT-5-S	THT-5-R	THT-5-L	1 x 2-1/8 x 12	5/8	20 to 24	8.2

STYLES AR and AL — SHOULDERING



For turning to square shoulder

STYLE AR

For facing to a square shoulder

STYLE AL

FEDERAL SPEC: 00-C-00845

R—Right Hand Only in Stock

No.	Shank Size	Tip Size	Nose R.	Grades Stocked			Wgt.
				Group 1	Group 2		
R.H.	L.H.			CQ2	CY14	CY16	
AR-4	AL-4	1/4 x 1/4 x 2	3/32 x 3/16 x 5/16	1/4	X	X	.03
AR-5	AL-5	5/16 x 5/16 x 2 1/4	3/32 x 1/4 x 1/2	3/4	X	X	.06
AR-6	AL-6	3/8 x 3/8 x 2 1/2	3/32 x 1/4 x 1/2	3/4	X	X	.07
AR-7	AL-7	1/2 x 1/2 x 3	3/32 x 1/4 x 1/2	3/4	X	X	.16
AR-8	AL-8	5/8 x 5/8 x 3 1/2	3/32 x 1/4 x 1/2	3/4	X	X	.25
AR-10	AL-10	3/4 x 3/4 x 4	3/32 x 1/4 x 1/2	3/4	X	X	.44
AR-12	AL-12	1 x 1 x 4 1/2	3/16 x 5/16 x 1 1/16	3/2	X	X	.63

STYLES BR and BL — TURNING (Lead Angle)



STYLE BR

For rough turning where square shoulder is not required

STYLE BL

Rough facing to cutter or where shoulder is not required

Heavy boring operation where square shoulder is not required

FEDERAL SPEC: 00-C-00845

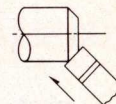
No.	Shank Size	Tip Size	Nose R.	Grades Stocked			Wgt.
				Group 1	Group 2		
R.H.	L.H.			CQ2	CY14	CY16	
BR-4	BL-4	1/4 x 1/4 x 2	3/32 x 3/16 x 5/16	1/4	X	X	.03
BR-5	BL-5	5/16 x 5/16 x 2 1/4	3/32 x 1/4 x 1/2	3/4	X	X	.06
BR-6	BL-6	3/8 x 3/8 x 2 1/2	3/32 x 1/4 x 1/2	3/4	X	X	.07
BR-7	BL-7	1/2 x 1/2 x 3	3/32 x 1/4 x 1/2	3/4	X	X	.16
BR-8	BL-8	5/8 x 5/8 x 3 1/2	3/32 x 1/4 x 1/2	3/4	X	X	.25
BR-10	BL-10	3/4 x 3/4 x 4	3/32 x 1/4 x 1/2	3/4	X	X	.44
BR-12	BL-12	1 x 1 x 4 1/2	3/16 x 5/16 x 1 1/16	3/2	X	X	.63

CARBIDE TIPPED SINGLE POINT BITS

STYLE C — CHAMFERING



These bits offer a flexible range of carbide tooling to shops with conventional lathe equipment. They are designed primarily for use in Williams Carbide Holders, except the 3/4" square shank sizes which are most often used in open side tool posts. Tips and shanks are accurately ground for clearance angles.



STYLE C
For Chamfering

Example of Order Nomenclature: "C-5 BIT GRADE CQ2"

No.	Shank Size	Tip Size	Grades Stocked			Wgt.
			Group 1	Group 2		
			CQ2	CY14	CY16	
C-4	1/4 x 1/4 x 2	1/16 x 1/4 x 5/16	X	X	X	.03
C-5	5/16 x 5/16 x 2 1/4	3/32 x 5/16 x 3/8	X	X	X	.06
C-6	3/8 x 3/8 x 2-1/2	3/32 x 3/8 x 1/2	X	X	X	.07
C-7	7/16 x 7/16 x 3	3/32 x 7/16 x 1/2	X	X	X	.16
C-8	1/2 x 1/2 x 3-1/2	1/8 x 1/2 x 1/2	X	X	X	.25
C-10	5/8 x 5/8 x 4	5/32 x 5/8 x 5/8	X	X	X	.44
C-12	3/4 x 3/4 x 4-1/2	3/16 x 3/4 x 3/4	X	X	X	.63

STYLE D — UNDERCUTTING and CHAMFERING



For undercutting and chamfering

STYLE D

For O.D. and I.D. chamfering

No.	Shank Size	Tip Size	Grades Stocked			Wgt.
			Group 1	Group 2		
			CQ2	CY14	CY16	
D-4	1/4 x 1/4 x 2	1/16 x 1/4 x 5/16	X	X	X	.03
D-5	5/16 x 5/16 x 2 1/4	3/32 x 5/16 x 3/8	X	X	X	.06
D-6	3/8 x 3/8 x 2 1/2	3/32 x 3/8 x 1/2	X	X	X	.07
D-7	1/2 x 1/2 x 3	3/32 x 1/2 x 1/2	X	X	X	.16
D-8	5/8 x 5/8 x 3 1/2	1/8 x 1/2 x 1/2	X	X	X	.25
D-10	3/4 x 3/4 x 4	5/32 x 3/4 x 3/4	X	X	X	.44
D-12	1 x 1 x 4 1/2	3/16 x 3/4 x 3/4	X	X	X	.63

STYLE E — 60° THREADING



For Universal threading

STYLE E

For 30° chamfering, notching or undercutting

No.	Shank Size	Tip Size	Grades Stocked		Wgt.
			Group 1	Group 2	
			CQ2	CY16	
E-4	1/4 x 1/4 x 2	1/16 x 1/4 x 5/16	X	...	.03
E-5	5/16 x 5/16 x 2 1/4	3/32 x 5/16 x 3/8	X	X	.06
E-6	3/8 x 3/8 x 2 1/2	3/32 x 3/8 x 1/2	X	X	.07
E-8	1/2 x 1/2 x 3 1/2	1/8 x 1/2 x 1/2	X	X	.25
E-10	5/8 x 5/8 x 4	5/32 x 5/8 x 5/8	X	X	.44
E-12	3/4 x 3/4 x 4 1/2	3/16 x 3/4 x 3/4	X	X	.63

9 STOCK FORGING



Observe proper listed capacity when lifting with hoist hooks and eyebolts. Also note working load factors and angle loading guide. OSHA regulations recommend annual magnaflux inspection of hoist hooks.

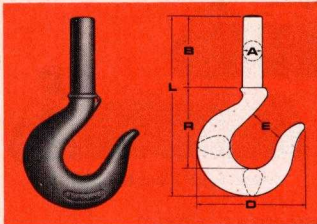
9

STOCK FORGING



DROP-FORGED HOIST HOOKS

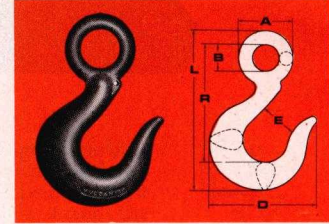
VULCAN® SHANK PATTERN



Forged from special quality fine grain carbon steel or alloy steel, quenched and tempered for the best combination of strength and toughness.

Tensile Properties	Carbon Steel	Alloy Steel
Tensile Strength	75,000 psi min	95,000 psi min
Yield Strength	50,000 psi min	70,000 psi min
Elongation	25% min	25% min
Reduction of Area	50% min	50% min
BHN	187/220	207/241

VULCAN® EYE PATTERN



Williams Hoist Hooks are furnished with drilled boss for assembly of hook latches. See table below for details on Hook Latch Kits. Hooks of special materials or lengths made to order. Magnaflux inspection available on special order. Use of rated capacity 5 to 1 as listed below is recommended. **Do not reduce shank diameters.**

Example of Order Nomenclature: "HH-32 HOOK, HSL-12-32 LATCH"

No.	Capacity Tons of 2000 lbs.			DIMENSIONS										Dimensions with Hook Latch		Wgt. Each, Lbs.
	Rated Cap of 5 to 1 based on break, St.	Avg. Load at Elastic Limit	Approx. Load to Straighten Out	A	B	C	D	E	G	H	K	L	R	E	M	

SHANK PATTERN HOIST HOOKS

Hook shanks are not machined. All hook shanks are 1/16 to 3/16" larger than listed diameter, depending on size, to allow for machining.

*These hooks made of Alloy Steel.

†Shanks can be made longer at an additional charge per extra inch or fraction thereof.

FEDERAL SPEC: SAFETY SHANK PATTERN — MIL-H-19253C, STYLE A, TYPE IV

HH-2	.66	2.2	3.3	1/2	2	11/16	3	1	25/32	15/16	9/16	5-1/32	2-1/4	7/8	25/32	.62
HH-3	.8	2.6	4.0	9/16	2-1/4	3/4	3-3/16	1-1/16	27/32	1	5/8	5-17/32	2-7/16	31/32	15/16	.81
HH-4	.9	2.9	4.5	5/8	2-1/2	7/8	3-9/16	1-1/8	1	1-1/8	11/16	6-1/8	2-5/8	1-1/32	15/16	1.2
HH-5	1.4	4.5	7.0	3/4	2-3/4	1	4	1-1/4	1-5/32	1-11/32	27/32	6-27/32	2-15/16	1-1/8	1-1/8	1.8
HH-6	2.2	7.1	11.0	7/8	3	1-5/32	4-9/16	1-3/8	1-11/32	1-9/16	31/32	7-5/8	3-1/4	1-7/32	1-1/8	2.7
HH-7	2.5	8.1	12.5	1	3-1/4	1-5/16	5-1/16	1-1/2	1-1/2	1-25/32	1-1/8	8-3/8	3-5/8	1-5/16	1-15/32	3.8
HH-8	3.0	9.7	15.0	1-1/8	3-1/2	1-7/16	5-7/8	1-3/4	1-11/16	2	1-1/4	9-5/16	4-1/8	1-5/8	1-1/2	5.3
HH-9	4.0	13.0	20.0	1-1/4	3-3/4	1-19/32	6-1/2	1-7/8	1-7/8	2-3/16	1-3/8	10-1/4	4-5/8	1-3/4	1-11/16	7.4
HH-10	4.2	13.6	21.0	1-3/8	4	1-3/4	7-3/16	2-1/16	2-1/32	2-13/32	1-17/32	11-5/32	5-1/8	1-7/8	1-15/16	9.8
HH-11	4.4	14.3	22.0	1-1/2	4-1/4	1-15/16	7-11/16	2-1/4	2-7/32	2-5/8	1-21/32	12-3/32	5-5/8	2-1/16	2-1/8	12.2
HH-12	7.0	22.7	35.0	1-5/8	4-1/2	2-1/8	8-9/16	2-1/2	2-17/32	2-31/32	1-13/16	13-5/32	6-1/8	2-5/16	2-5/32	17.0
HH-13	9.0	28.3	45.0	1-3/4	5	2-1/4	9-9/16	3	2-25/32	3-9/32	1-15/16	14-17/32	6-3/4	2-25/32	2-1/2	20.4
HH-14	10.0	32.5	50.0	2	5-1/2	2-9/16	11-7/16	3-3/8	3-7/32	3-13/16	2-7/32	16-9/32	7-9/16	3-5/32	2-13/16	31.9
HH-15	16.0	55.0	80.0	2-3/8	6	3	13-7/8	4	4-3/16	4-15/16	2-5/8	18-11/16	8-1/2	3-3/4	3-1/16	54.3
*HH-15A	19.0	65.0	95.0	2-3/8	6	3	13-7/8	4	4-3/16	4-15/16	2-5/8	18-11/16	8-1/2	3-3/4	3-1/16	54.3
HH-16	20.0	65.0	100.0	2-3/4	7	3-1/2	15-5/8	4-7/16	4-13/16	5-21/32	3-1/16	21-7/8	10-1/16	4-3/16	3-11/16	88.8
*HH-16A	24.0	81.25	120.0	2-3/4	7	3-1/2	15-5/8	4-7/16	4-13/16	5-21/32	3-1/16	21-7/8	10-1/16	4-3/16	3-11/16	88.8
HH-17-12"	47.0	153.0	235.0	4-1/16	12	5-3/8	19	5-1/4	6-1/4	7-3/8	3-7/8	30-13/16	12-9/16	.....	.....	200.0
*HH-17A-12"	55.0	178.0	275.0	4-1/16	12	5-3/8	19	5-1/4	6-1/4	7-3/8	3-7/8	30-13/16	12-9/16	.....	.....	200.0
HH-17-24"	47.0	153.0	235.0	4-1/16	24	5-3/8	19	5-1/4	6-1/4	7-3/8	3-7/8	42-13/16	12-9/16	.....	.....	244.0
*HH-17A-24"	55.0	178.0	275.0	4-1/16	24	5-3/8	19	5-1/4	6-1/4	7-3/8	3-7/8	42-13/16	12-9/16	.....	.....	244.0

EYE PATTERN HOIST HOOKS

*These hooks made of Alloy Steel.

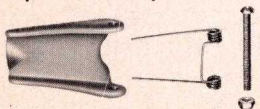
FEDERAL SPEC: REGULAR EYE PATTERN — RR-C-271B, TYPE V, CLASS 3

EYE PATTERN — MIL-H-19253C, STYLE A, TYPE I, CLASS 1

HH-22	.66	2.2	3.3	1-1/2	3/4	.....	3	1	25/32	15/16	9/16	4-13/32	3-1/4	7/8	25/32	.56
HH-23	.8	2.6	4.0	1-3/4	7/8	.....	3-3/16	1-1/16	29/32	1	5/8	4-29/32	3-5/8	31/32	15/16	.76
HH-24	.9	2.9	4.5	2	1	.....	3-9/16	1-1/8	1	1-1/8	11/16	5-15/32	4	1-1/32	15/16	1.2
HH-25	1.4	4.5	7.0	2-1/4	1-1/8	.....	4	1-1/4	1-5/32	1-11/32	27/32	6-7/32	4-1/2	1-1/8	1-1/8	1.7
HH-26	2.2	7.1	11.0	2-1/2	1-1/4	.....	4-9/16	1-3/8	1-11/32	1-9/16	31/32	6-29/32	4-15/16	1-7/32	1-1/8	2.6
HH-27	2.5	8.1	12.5	2-3/4	1-3/8	.....	5-1/16	1-1/2	1-1/2	1-25/32	1-1/8	7-3/4	5-9/16	1-5/16	1-15/32	3.6
HH-28	3.0	9.7	15.0	3-1/8	1-1/2	.....	5-7/8	1-3/4	1-11/16	2	1-1/4	8-11/16	6-1/4	1-5/8	1-1/2	5.0
HH-29	4.0	13.0	20.0	3-3/8	1-5/8	.....	6-1/2	1-7/8	1-7/8	2-3/16	1-3/8	9-5/8	6-15/16	1-3/4	1-11/16	7.3
HH-30	4.2	13.6	21.0	3-5/8	1-3/4	.....	7-3/16	2-1/16	2-1/32	2-13/32	1-17/32	10-17/32	7-5/8	1-7/8	1-15/16	9.3
HH-31	4.4	14.3	22.0	4-1/4	2	.....	7-11/16	2-1/4	2-7/32	2-5/8	1-21/32	11-23/32	8-1/2	2-1/16	2-1/8	12.3
HH-32	7.0	22.7	35.0	4-7/8	2-3/8	.....	8-9/16	2-1/2	2-17/32	2-31/32	1-13/16	13-3/32	9-7/16	2-5/16	2-5/32	18.1
HH-33	9.0	28.3	45.0	5-1/2	2-3/4	.....	9-9/16	3	2-25/32	3-9/32	1-15/16	14-25/32	10-3/4	2-25/32	2-1/2	23.6
HH-34	10.0	32.5	50.0	6-3/8	3-1/8	.....	11-7/16	3-3/8	3-7/32	3-13/16	2-7/32	16-29/32	12-5/16	3-5/32	2-13/16	35.5
HH-35	16.0	55.0	80.0	7	3-1/2	.....	13-7/8	4	4-3/16	4-15/16	2-5/8	19-15/16	14	3-3/4	3-1/16	57.6
*HH-35A	19.0	65.0	95.0	7	3-1/2	.....	13-7/8	4	4-3/16	4-15/16	2-5/8	19-15/16	14	3-3/4	3-1/16	57.6
HH-36	20.0	65.0	100.0	8-1/2	4	.....	16-5/8	4-7/16	4-13/16	5-21/32	3-1/16	22-15/16	15-7/8	4-3/16	3-11/16	86.8
*HH-36A	24.0	81.25	120.0	8-1/2	4	.....	16-5/8	4-7/16	4-13/16	5-21/32	3-1/16	22-15/16	15-7/8	4-3/16	3-11/16	86.8

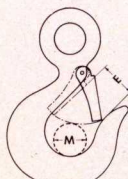
HOOK LATCH KITS

Individually packaged with complete assembly instructions.



HOOK LATCHES

Rugged latches have powerful, non-corrosive snap springs to restrain sling from being jarred from the hook. Latches are sufficiently large to allow operator ample gripping area so that fingers will not be exposed to the load-carrying line.

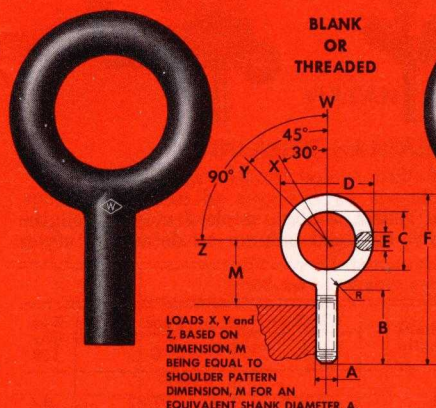


Kit No.	To Fit Nos.	Kit No.	To Fit Nos.
HSL-2-22	HH-2, HH-22	HSL-10-30	HH-10, HH-30
HSL-3-23	HH-3, HH-23	HSL-11-31	HH-11, HH-31
HSL-4-24	HH-4, HH-24	HSL-12-32	HH-12, HH-32
HSL-5-25	HH-5, HH-25	HSL-13-33	HH-13, HH-33
HSL-6-26	HH-6, HH-26	HSL-14-34	HH-14, HH-34
HSL-7-27	HH-7, HH-27	HSL-15-35	HH-15, HH-35, HH-35-A
HSL-8-28	HH-8, HH-28	HSL-16-36	HH-16, HH-36, HH-36-A
HSL-9-29	HH-9, HH-29	HSL-17	HH-17, HH-17A

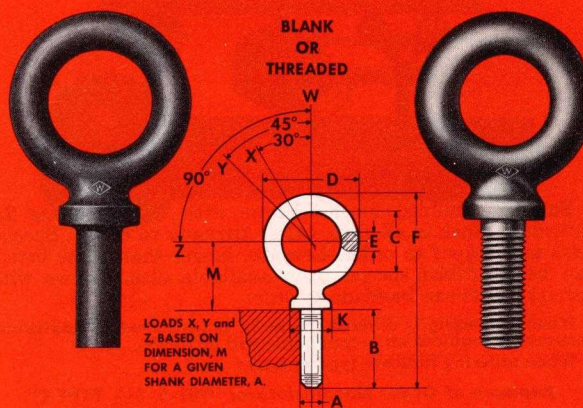


DROP-FORGED EYE BOLTS—CARBON STEEL-WELDLESS

VULCAN® PLAIN PATTERN



VULCAN® SHOULDER PATTERN



Forged from special quality, fine grain carbon steel, quenched and tempered to BHN 187-220 for the best combination of strength and toughness. Each lot is tested and inspected to insure conformance with specifications. Unified Coarse (UNC) Class 2A Threaded Eye Bolts of Standard Length are in stock in all sizes; threaded prices are for UNC Class 2A Threads; longer lengths and special threads extra. Eye Bolts of special materials or lengths made to order.

When ordering, please state whether Threaded or Blank is desired; Threaded will be supplied, unless otherwise specified.

Do not undercut eyebolt shanks or reduce shank diameters.

* When load application is in direction of axis of shank.

** The many variables that arise from angular loading; such as sling application, extent to which eyebolt is threaded into hole, etc., prohibit the use of this chart for specific conditions. The given loads are a guide, with no guarantee of actual performance.

Mechanical Properties

Tensile Strength	75,000 psi min.
Yield Strength	50,000 psi min.
Elongation	25% min.
Reduction of Area	50% min.

FEDERAL SPEC: PLAIN AND SHOULDER PATTERN — ANS B18.15-1969; SHOULDER PATTERN ONLY — MS-51937

No.	Nom. Shank Diam.	Length of Shank B		Eye I.D. C	Eye O.D. D	Eye Sect. Diam. E	Overall Length F	Shoulder Diam. K	Thread UNC-2A	Capacity * Pounds		Guide For Angular Loading—Pounds ** To be used as a guide only.			Wgt. Ea., Lbs.
		Working Load W	Break- ing Strain Approx.							X-30°	Y-45°	Z-90°			
										Rated Capacity	Rated Capacity	Rated Capacity	Rated Capacity		
PLAIN PATTERN															
EB-1	1/4	1	.....	3/4	1-3/16	7/32	2-3/16	.....	1/4-20	500	2,500	150	100	75	.05
EB-2	5/16	1-1/8	.....	7/8	1-7/16	9/32	2-9/16	.....	5/16-18	900	4,500	270	180	135	.09
EB-3	3/8	1-1/4	12	1	1-21/32	21/64	2-29/32	.....	3/8-16	1,300	6,500	390	260	195	.18
EB-4	7/16	1-3/8	12	1-3/32	1-27/32	3/8	3-7/32	.....	7/16-14	1,800	9,000	540	360	270	.26
EB-5	1/2	1-1/2	12	1-3/16	2-1/16	7/16	3-9/16	.....	1/2-13	2,400	12,000	720	480	360	.35
EB-6	9/16	1-5/8	12	1-9/32	2-9/32	1/2	3-29/32	.....	9/16-12	3,000	15,000	900	600	450	.53
EB-7	5/8	1-3/4	12	1-3/8	2-1/2	9/16	4-1/4	.....	5/8-11	4,000	20,000	1,200	800	600	.72
EB-8	3/4	2	12	1-1/2	2-13/16	21/32	4-13/16	.....	3/4-10	5,000	25,000	1,500	1,000	750	1.2
EB-9	7/8	2-1/4	12	1-11/16	3-1/4	25/32	5-1/2	.....	7/8-9	7,000	35,000	2,100	1,400	1,050	1.6
EB-10	1	2-1/2	12	1-13/16	3-9/16	7/8	6-1/16	.....	1-8	9,000	45,000	2,700	1,800	1,350	2.2
EB-11	1-1/8	2-3/4	12	2	4	1	6-3/4	.....	1-1/8-7	12,000	60,000	3,600	2,400	1,800	3.2
EB-12	1-1/4	3	12	2-3/16	4-7/16	1-1/8	7-7/16	.....	1-1/4-7	15,000	75,000	4,500	3,000	2,250	4.5
EB-14	1-1/2	3-1/2	18	2-1/2	5-3/16	1-11/32	8-11/16	.....	1-1/2-6	21,000	105,000	6,300	4,200	3,150	7.2
EB-15	1-3/4	3-3/4	18	2-7/8	6-1/16	1-19/32	9-13/16	.....	1-3/4-5	28,000	140,000	7,400	5,600	4,200	11.6
EB-16	2	4	18	3-1/4	6-7/8	1-13/16	10-7/8	.....	2-4-1/2	38,000	190,000	11,400	7,600	5,700	16.1
EB-17	2-1/2	5	12	4	8-9/16	2-9/32	13-9/16	.....	2-1/2-4	56,000	280,000	16,800	11,200	8,400	33.
SHOULDER PATTERN															
On standard length Threaded Eye Bolts the thread runs within 7/32" (EB-21) to 5/8" (EB-36) of shoulder, which is faced.															
EB-21	1/4	1	12	3/4	1-3/16	7/32	2-13/32	17/32	1/4-20	500	2,500	175	125	100	.05
EB-22	5/16	1-1/8	12	7/8	1-7/16	9/32	2-13/16	19/32	5/16-18	900	4,500	310	225	180	.11
EB-23	3/8	1-1/4	12	1	1-21/32	21/64	3-15/64	11/16	3/8-16	1,300	6,500	450	325	260	.21
EB-24	7/16	1-3/8	12	1-3/32	1-27/32	3/8	3-39/64	25/32	7/16-14	1,800	9,000	630	450	360	.28
EB-25	1/2	1-1/2	12	1-3/16	2-1/16	7/16	3-31/32	7/8	1/2-13	2,400	12,000	840	600	480	.43
EB-26	9/16	1-5/8	12	1-9/32	2-9/32	1/2	4-23/64	31/32	9/16-12	3,000	15,000	1,050	750	600	.58
EB-27	5/8	1-3/4	12	1-3/8	2-1/2	9/16	4-23/32	1-1/16	5/8-11	4,000	20,000	1,400	1,000	800	.77
EB-28	3/4	2	12	1-1/2	2-13/16	21/32	5-5/16	1-1/4	3/4-10	5,000	25,000	1,750	1,250	1,000	1.2
EB-29	7/8	2-1/4	12	1-11/16	3-1/4	25/32	6-1/16	1-7/16	7/8-9	7,000	35,000	2,450	1,750	1,400	1.9
EB-30	1	2-1/2	18	1-13/16	3-9/16	7/8	6-11/16	1-9/16	1-8	9,000	45,000	3,150	2,250	1,800	2.6
EB-31	1-1/8	2-3/4	18	2	4	1	7-15/32	1-11/16	1-1/8-7	12,000	60,000	4,200	3,000	2,400	3.7
EB-32	1-1/4	3	18	2-3/16	4-7/16	1-1/8	8-5/32	1-7/8	1-1/4-7	15,000	75,000	5,200	3,750	3,000	4.9
EB-34	1-1/2	3-1/2	18	2-1/2	5-3/16	1-11/32	9-17/32	2-3/16	1-1/2-6	21,000	105,000	7,300	5,250	4,200	8.
EB-35	1-3/4	3-3/4	18	2-7/8	6-1/16	1-19/32	10-11/16	2-1/2	1-3/4-5	28,000	140,000	9,800	7,000	5,600	13.3
EB-36	2	4	18	3-1/4	6-7/8	1-13/16	11-15/16	2-7/8	2-4-1/2	38,000	190,000	13,000	9,500	7,600	19.2

DROP-FORGED THUMB SCREWS

THREADED



Smooth, tumbled finish. Screws with Unified Class 2A threads in stock in all sizes, **other threads to order**. Special sizes and shapes to order. Lengths, longer than those listed, can be furnished special from available dies. Screws with special points can be made to order.

When threading is ordered, Class 2A is furnished. If additional accuracy is required an extra charge will be made.

When ordering indicate type by letter

Example of Order Nomenclature: "TST-5-3½ TYPE C"

FEDERAL SPEC: FF-T-305A, TYPE II, (J.H.W. TYPE C)

Number	Diam. of Screw and Threads Per Inch	Lgth. Under Head	Width of Head Of Type in Stock		Wgt. Per 100
			A	C	
TST-3-1/2	10-24	1/2	15/16	27/32	5.5
TST-3-3/4	10-24	3/4	15/16	27/32	5.9
TST-3-1	10-24	1	15/16	27/32	6.4
TST-3-1-1/4	10-24	1-1/4	15/16	27/32	6.8
TST-3-1-1/2	10-24	1-1/2	15/16	27/32	6.9
TST-3-2	10-24	2	15/16	27/32	7.6
TST-4-1/2	1/4-20	1/2	1-1/8	1	5.5
TST-4-3/4	1/4-20	3/4	1-1/8	1	5.9
TST-4-1	1/4-20	1	1-1/8	1	6.4
TST-4-1-1/4	1/4-20	1-1/4	1-1/8	1	6.8
TST-4-1-1/2	1/4-20	1-1/2	1-1/8	1	6.9
TST-4-2	1/4-20	2	1-1/8	1	7.6
TST-4-2-1/2	1/4-20	2-1/2	1-1/8	1	8.4
TST-4-3	1/4-20	3	1-1/8	1	9.5
TST-5-1/2	5/16-18	1/2	1-7/16	1-3/16	5.5
TST-5-3/4	5/16-18	3/4	1-7/16	1-3/16	5.9
TST-5-1	5/16-18	1	1-7/16	1-3/16	6.4
TST-5-1-1/4	5/16-18	1-1/4	1-7/16	1-3/16	6.8
TST-5-1-1/2	5/16-18	1-1/2	1-7/16	1-3/16	6.9
TST-5-2	5/16-18	2	1-7/16	1-3/16	7.6
TST-5-2-1/2	5/16-18	2-1/2	1-7/16	1-3/16	8.4
TST-5-3	5/16-18	3	1-7/16	1-3/16	9.5
TST-5-3-1/2	5/16-18	3-1/2	.....	1-3/16	10.
TST-5-4	5/16-18	4	.....	1-3/16	10.9
TST-6-1/2	3/8-16	1/2	1-11/16	1-3/8	5.5
TST-6-3/4	3/8-16	3/4	1-11/16	1-3/8	5.9
TST-6-1	3/8-16	1	1-11/16	1-3/8	6.4
TST-6-1-1/4	3/8-16	1-1/4	1-11/16	1-3/8	6.8
TST-6-1-1/2	3/8-16	1-1/2	1-11/16	1-3/8	6.9
TST-6-2	3/8-16	2	1-11/16	1-3/8	7.6
TST-6-2-1/2	3/8-16	2-1/2	1-11/16	1-3/8	8.4
TST-6-3	3/8-16	3	1-11/16	1-3/8	9.5
TST-6-3-1/2	3/8-16	3-1/2	1-11/16	1-3/8	10.
TST-6-4	3/8-16	4	1-11/16	1-3/8	10.9
TST-7-1	7/16-14	1	2	1-9/16	6.4
TST-7-1-1/4	7/16-14	1-1/4	2	1-9/16	6.8
TST-7-1-1/2	7/16-14	1-1/2	2	1-9/16	6.9
TST-7-2	7/16-14	2	2	1-9/16	7.6
TST-7-2-1/2	7/16-14	2-1/2	2	1-9/16	8.4
TST-7-3	7/16-14	3	2	1-9/16	9.5
TST-7-3-1/2	7/16-14	3-1/2	.....	1-9/16	10.
TST-8-1	1/2-13	1	2-1/4	1-3/4	6.4
TST-8-1-1/4	1/2-13	1-1/4	2-1/4	1-3/4	6.8
TST-8-1-1/2	1/2-13	1-1/2	2-1/4	1-3/4	6.9
TST-8-2	1/2-13	2	2-1/4	1-3/4	7.6
TST-8-2-1/2	1/2-13	2-1/2	2-1/4	1-3/4	8.4
TST-8-3	1/2-13	3	2-1/4	1-3/4	9.5
TST-10-1	5/8-11	1	2-3/4	.....	6.4
TST-10-1-1/2	5/8-11	1-1/2	2-3/4	.....	6.9
TST-10-2	5/8-11	2	2-3/4	.....	7.6
TST-10-2-1/2	5/8-11	2-1/2	2-3/4	.....	8.4

BLANK



Smooth, tumbled finish. Blanks stocked only in lengths shown. Check Width of Head column to determine styles stocked.

When ordering indicate type by letter.

Number	Shank Diam.	Shank Lgth.	Width of Head by Type		Wgt. per 100
			A	C	
TSB- 3-1	3/16	1	15/16	27/32	6.4
TSB- 3-2	3/16	2	15/16	27/32	7.6
TSB- 4- 1/2	1/4	1/2	1- 1/8	.....	5.5
TSB- 4-1	1/4	1	.....	1	6.4
TSB- 4-2	1/4	2	1- 1/8	1	7.6
TSB- 4-3	1/4	3	1- 1/8	1	9.5
TSB- 5-1	5/16	1	1- 7/16	1- 3/16	6.4
TSB- 5-1-1/2	5/16	1-1/2	1- 7/16	.....	6.9
TSB- 5-2	5/16	2	1- 7/16	1- 3/16	7.6
TSB- 5-3	5/16	3	1- 7/16	.....	9.5
TSB- 5-4	5/16	4	.....	1- 3/16	10.9
TSB- 6-1	3/8	1	1-11/16	1- 3/8	6.4
TSB- 6-2	3/8	2	1-11/16	1- 3/8	7.6
TSB- 6-3	3/8	3	.....	1- 3/8	9.5
TSB- 6-4	3/8	4	1-11/16	1- 3/8	10.9
TSB- 7-3	7/16	3	2	.....	9.5
TSB- 7-3-1/2	7/16	3-1/2	.....	1- 9/16	10.
TSB- 8-2	1/2	2	2- 1/4	1- 3/4	7.6
TSB- 8-3	1/2	3	2- 1/4	1- 3/4	9.5
TSB-10-2	5/8	2	2- 3/4	.....	7.6
TSB-10-2-1/2	5/8	2-1/2	2- 3/4	.....	8.4

DROP-FORGED THUMB NUTS



BLANK or TAPPED

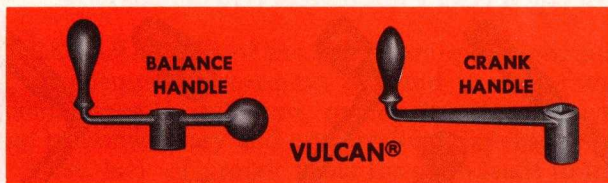
Furnished either Blank or Tapped, tumbled smooth. Nuts tapped Unified Class 2B threads in stock in all sizes. **Other threads to order.** Unless otherwise specified, orders for Tapped Nuts will be supplied with Unified Class 2B threads. Tapped Nuts have base faced at right angle to hole. Special sizes and shapes to order.

When tapping is ordered, Class 2B is furnished. If additional accuracy is required an extra charge will be made.

FEDERAL SPEC: FF-N-845C, TYPE A, STYLE I, (J.H.W. TYPE A)

Number		For Bolt Size and Threads Per In.	Width Across Wings	Diam. Top of Barrel	Wgt. Per 100
Blank	Tapped				
TNA-1/8	TNAT-1/8	5-40	3/4	1/4	.62
TNA-3/16	TNAT-3/16	10-24	15/16	5/16	1.3
TNA-1/4	TNAT-1/4	1/4-20	1-1/8	3/8	2.3
TNA-5/16	TNAT-5/16	5/16-18	1-7/16	7/16	4.
TNA-3/8	TNAT-3/8	3/8-16	1-11/16	17/32	6.2
TNA-7/16	TNAT-7/16	7/16-14	2	5/8	9.1
TNA-1/2	TNAT-1/2	1/2-13	2-1/4	21/32	12.7
TNA-9/16	TNAT-9/16	9/16-12	2-9/16	3/4	16.2
TNA-5/8	TNAT-5/8	5/8-11	2-3/4	13/16	22.5
TNA-3/4	TNAT-3/4	3/4-10	3-1/4	15/16	37.

DROP-FORGED HANDLES



BALANCE HANDLES

Plain forgings without hole in hub. Handles finished to specification can be supplied on special request. Openings can be broached, hubs cut, handles offset to order at extra cost. Include sketch or drawing with your inquiry or order.

Number	Length			Hub		Ball Dia.	Wgt. Ea., Lbs.
	C Hub to C Hdle.	Ex-treme	Hdle. Above Arm	Dia.	Lgth.		
BH-512	1-1/4	3-5/16	1-15/16	7/8	3/4	7/8	.25
BH-516	1-5/8	4	2-1/4	7/8	7/8	1-1/4	.56
BH-520	2	5	2-5/8	1	15/16	1-1/4	.75
BH-522	2-1/4	5-1/2	2-3/4	1-1/4	1	1-3/8	1.1
BH-525	2-1/2	6	2-13/16	1-1/4	1-1/8	1-7/16	1.3

†Handle cone-shaped, see Crank Handle illustration above.

CRANK HANDLES

Unfinished are plain forgings without hole in hub.

Finished are broached, counterbored in free end of hub, ground with polished grip, case-hardened all over, industrial gray finish.

Broached openings have corners slightly rounded to prevent breakage, a slight clearance is provided. Openings other than standard and special sizes, can be broached to order at extra cost. Hubs can be cut to shorter lengths. Handles can be offset at an additional charge.

Number			Length			Hub		Sq. Hole, Size Broached		Wgt. Ea., Lbs.
Un-Fin- ished	Broached *	Finished	C Hub to C Hdle.	Ex-treme	Hdle. Above Arm	Dia.	Lgth.	Std. in Stock	Max. to Spec. Order	
CH-00	CH-00-1	CH-00-2	1-3/4	2-5/8	2-3/8	1	1-1/4	1/2	5/8	.38
CH-0	CH-0-1	CH-0-2	2-1/4	3-1/8	2-1/2	1	1-1/4	1/2	5/8	.43
CH-1	CH-1-1	CH-1-2	3	4	2-3/4	1-1/4	1-1/2	9/16	13/16	.78
CH-2	CH-2-1	CH-2-2	3-1/2	4-1/2	2-7/8	1-1/16	1-5/16	1/2	5/8	.75
CH-4	CH-4-1	CH-4-2	4	5-1/8	3-1/8	1-1/4	1-3/8	9/16	13/16	1
CH-6	CH-6-1	CH-6-2	5	6-1/8	3-1/8	1-1/4	1-13/16	5/8	13/16	1.1
CH-8	CH-8-1	CH-8-2	6	7-1/8	3-1/8	1-1/4	1-15/16	11/16	13/16	1.2
CH-10	CH-10-1	CH-10-2	7	8-1/4	3-3/8	1-3/8	2-1/16	3/4	7/8	1.6
CH-12	CH-12-1	CH-12-2	8	9-3/8	3-5/8	1-9/16	2-7/16	7/8	1	2.4
CH-14	CH-14-1	CH-14-2	9-1/8	10-1/2	3-3/4	1-1/2	2-1/2	7/8	1	2.5
CH-16	CH-16-1	CH-16-2	10	11-1/2	4	1-3/4	3	1	1-1/8	3.2

*Broached have holes finished and hubs recessed or counterbored in free end, but are otherwise plain forgings.

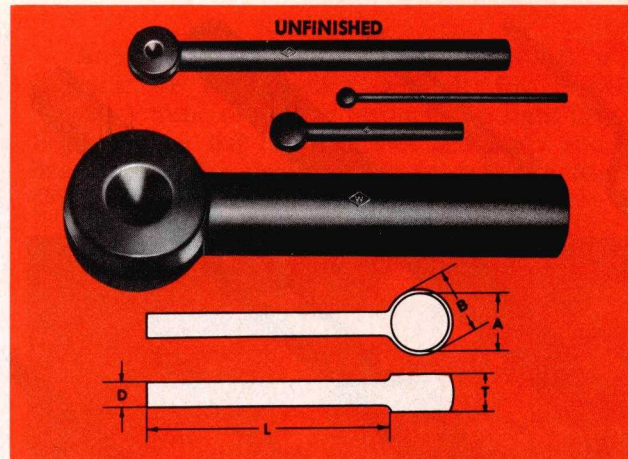
DROP-FORGED MACHINE HANDLES

UNFINISHED WITH SMOOTH SURFACE



No.	Extreme Length	Standard Lgth. Shank	Diameter, Shank	Weight Each, Lbs.
BALL PATTERN				
MH-2	3-1/4	3/4	15/32	.22
MH-3	3-7/8	7/8	15/32	.31
MH-4	4-1/2	1	17/32	.37
MH-5	5-1/8	1-1/8	19/32	.62
CONE PATTERN				
MH-11	3-1/2	1/2	3/8	.22
MH-13	4-1/2	3/4	7/16	.43

DROP-FORGED ROD ENDS



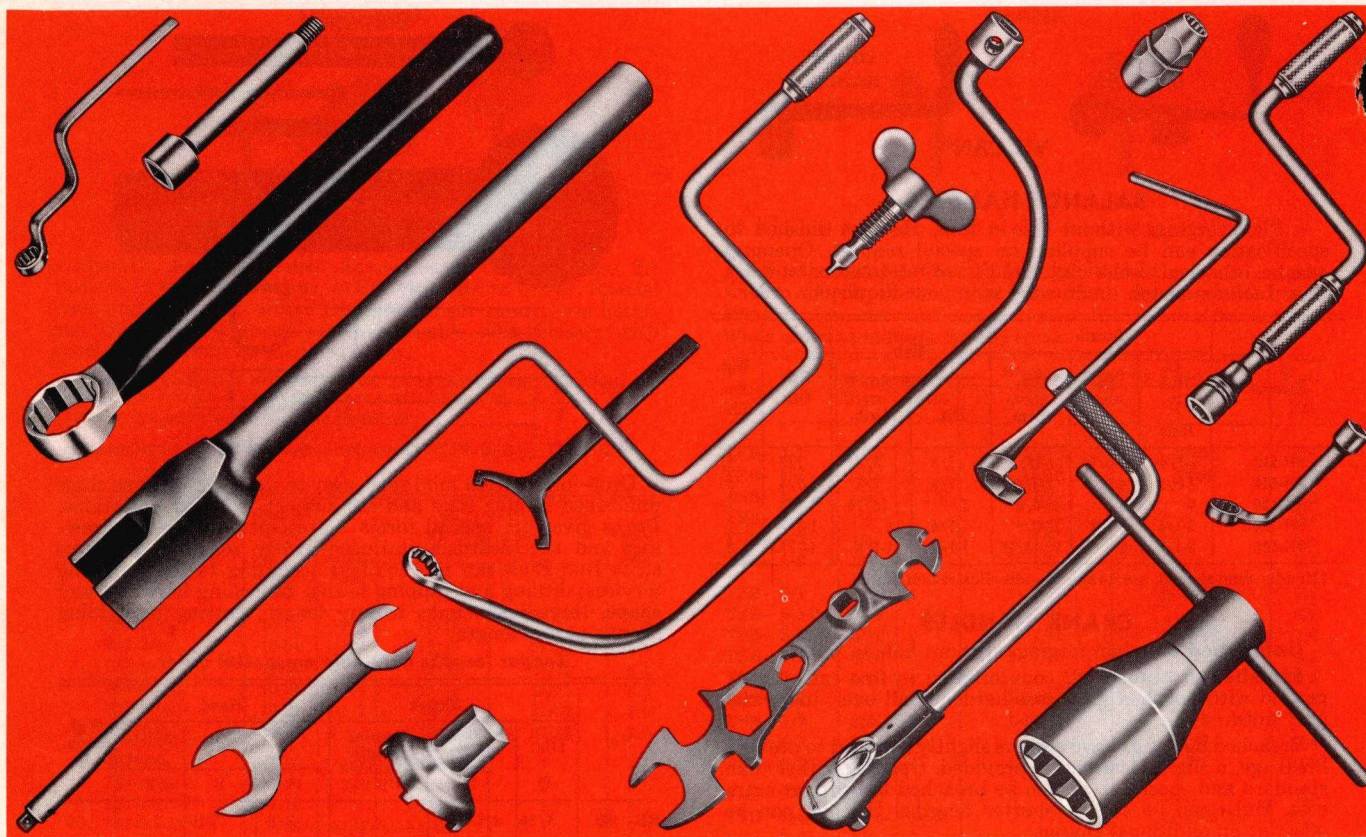
Drop-forged from mild steel, easy to weld. Dimensions show unfinished forging sizes and are subject to slight variations. Prices given for special forms on receipt of models or drawings and specifications stating quantity required. Williams stock Rod Ends can be modified according to the following services; drilling and tapping heads, broaching heads to any shape, threading shanks to any length, cutting or welding shanks to any length.

Longer lengths available on special order.

No.	Shank			Head			Wgt. Each, Lbs.
	Dia.	Std. Length under Head L	Special Length Available Up to	Diameter		Thick-ness T	
				A	B		
RE- 0B	3/16	4-13/16	.....	3/8	7/16	1/4	.06
RE- 1C	1/4	5	9	5/8	11/16	1/4	.10
RE- 1D	1/4	2- 3/8	9	7/16	1/2	1/4	.05
RE- 2A	5/16	3- 3/4	9	3/4	53/64	7/16	.16
RE- 2B	5/16	3- 1/8	.....	3/4	53/64	5/16	.13
RE- 2C	5/16	5- 3/4	.....	3/4	13/16	3/8	.19
RE- 2D	5/16	1- 1/4	.....	13/16	57/64	3/8	.10
RE- 3A	3/8	2	9	1	1- 1/16	3/8	.16
RE- 3C	3/8	3- 1/2	9	13/16	57/64	3/8	.19
RE- 3E	3/8	3- 1/8	.....	5/8	23/32	5/8	.19
RE- 3F	3/8	1- 1/8	.....	3/4	53/64	3/8	.10
RE- 3G	3/8	1- 7/16	.....	5/8	45/64	3/8	.09
RE- 3H	3/8	1- 5/8	.....	3/4	13/16	3/8	.11
RE- 3J	3/8	3- 1/16	.....	7/8	31/32	3/8	.17
RE- 4B	7/16	4- 1/2	9	15/16	1- 1/32	5/8	.35
RE- 5A	1/2	4- 3/8	15	1	1- 1/4	1/2	.35
RE- 5C	1/2	3- 1/16	.....	7/8	61/64	7/16	.27
RE- 5D	1/2	2- 7/8	12	3/4	1- 1/8	13/16	.36
RE- 5E	1/2	2- 1/8	12	1- 1/16	1- 7/32	9/16	.31
RE- 5F	1/2	2- 1/16	.....	13/16	59/64	11/32	.19
RE- 7A	5/8	2- 3/8	18	1- 1/8	1-13/64	15/32	.35
RE- 7B	5/8	4- 7/8	18	1- 1/4	1-11/32	19/32	.69
RE- 7D	5/8	7- 1/2	.....	1- 5/32	1- 1/4	21/32	.92
RE- 7E	5/8	5- 7/8	.....	1- 1/8	1- 9/16	1-1/16	1.
RE- 7F	5/8	4- 1/2	18	1- 7/16	1-17/32	11/16	.77
RE- 7G	5/8	2- 5/16	.....	1	1- 1/8	7/16	.34
RE- 9A	3/4	3- 7/8	6	1- 3/4	1-27/32	5/8	1.
RE- 9B	3/4	4	15	1- 1/2	1- 5/8	13/16	1.
RE- 9C	3/4	4- 3/8	6	1- 1/8	1-15/64	3/4	.88
RE-11A	7/8	3- 1/2	15	1- 1/2	1- 5/8	1-1/16	1.3
RE-11B	7/8	4	18	2	2- 1/8	15/16	1.6
RE-13B	1	3- 1/2	6	1- 5/8	1-51/64	1-1/2	1.9
RE-13C	1	3- 1/2	18	1-15/32	1-19/32	1-1/8	1.5
RE-14A	1-1/16	5- 3/4	.....	2- 1/16	2- 7/32	1-1/8	2.8
RE-15B	1-1/8	6	18	2- 1/4	2- 7/16	1-1/4	3.3
RE-17A	1-1/4	6	24	2- 5/16	2-17/32	1-1/2	4.1



SPECIAL and MODIFIED WRENCHES and TOOLS



THOUSANDS OF TOOLS AVAILABLE FOR ADAPTATION

When special tools are required, it is not always necessary to start from "scratch." The Williams line offers thousands of standard wrenches and hand tools that lend themselves to modification or adaptation.

Stock components, such as speeder handles, ratchet heads, sockets and wrench heads can often be combined with such special services as bending or welding to produce exactly the tool required.

Should your problem require it, we can furnish engineering and product development assistance plus the services and facilities of a well equipped metallurgical laboratory. More specialized tools can readily be designed.

In submitting a sketch or drawing for quotation, it is often helpful to include a photograph showing the clearance and obstruction conditions surrounding the area in which the tool is to be used.

WILLIAMS IMPACT EXTRUDED SOCKETS

A NEW HIGH STANDARD OF ACCURACY AND QUALITY IN SOCKET MANUFACTURE

Williams highly developed cold impact extrusion imparts all the quality characteristics of a precision-forged tool to further improve the superior design of Williams sockets. All popular sizes of Supersockets in 3/8, 1/2, 3/4, and 1 inch drives are now being manufactured by the extrusion method.

Extremely close tolerances, improved concentricity and great strength team up to provide new standards for socket performance.

STEP BY STEP, NEW QUALITY IS BUILT INTO WILLIAMS SOCKETS



Selected alloy steel bar stock cut to proper length.



Preforming operation sizes slug to required O.D. Slug is then coated with special lubricant.



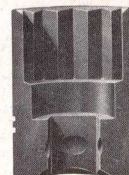
Double-hex punch forms concentric nut opening in one impacting operation.



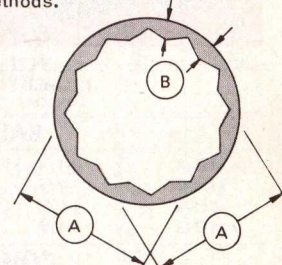
Square punch forms drive opening in other end, giving socket final size and shape.



Finishing operations, including durable nickel-chrome plating, complete manufacture.



Cross section of new impact extruded socket. Note clean lines and lack of any undercut for displacement of metal.



Concentricity of thin wall section (B) can be held to tolerances far more critical than sockets formed by most other methods.

Tolerances across flats (A) are held to U.S.A. Standards Institute standards.

PROPER SELECTION AND SAFE USE OF HAND TOOLS

REGARDLESS of the size of an operation, lack of an adequate assortment of hand tools for any maintenance, installation, or construction job can lead to unnecessary and unwarranted expense.

First, lack of proper tools for a job leads to improvising and misapplication of the tools at hand. Then costly abuse, excessive wear, and premature tool failure inevitably follow. Not only will the cost of worn and broken tools be exceedingly high, but the additional time spent accomplishing the task and the accompanying increased and costly accident rate will far exceed the cost of providing and maintaining an adequate hand-tool inventory.

Four major factors enter into cost reduction in hand-tool investment. They are: (1) careful selection and top quality, (2) adequate range of sizes and styles, (3) correct use and (4) proper care.

Careful selection. While price is important in the selection of any product, value—true value—is the real determining factor. Generally, the best-quality hand tool is the least costly in the long run. It is rare indeed that “cheap tools” ever deliver real value. Top-quality tools forestall breakage, excessive wear, and premature failure, all of which result in lost time and high accident rates.

Another important factor in careful selection is buying the right tool for the job. Flange-jacks (Fig. 1) are a good example of tools designed especially for a particular job—that of replacing the gasket in pipe flanges. The old method was risky and time-consuming. (Fig. 2).

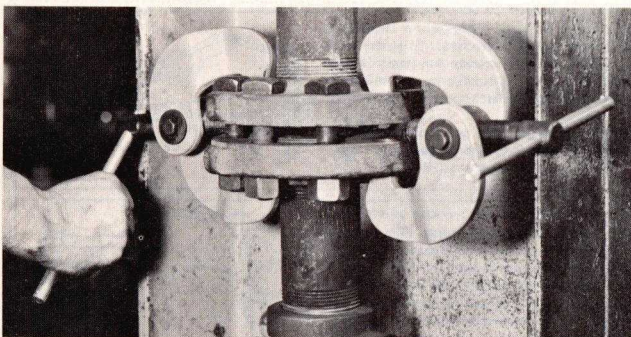


Fig. 1

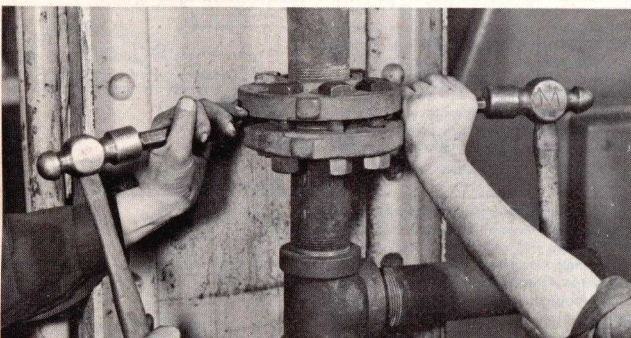


Fig. 2

Another example of specialized tools is the slugging or striking-face wrench for loosening “frozen” nuts, or setting fasteners up tight (Fig. 3). High on the list of hand-tool accidents and tool breakage is the use of pipe to increase leverage (Fig. 4).

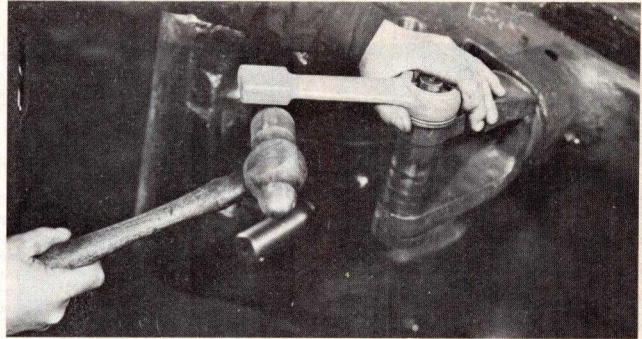


Fig. 3



Fig. 4

It is important that tool buyers and users study the latest tool catalogs so that they will know the work-saving and safety features of all the specialized types of tools available today.

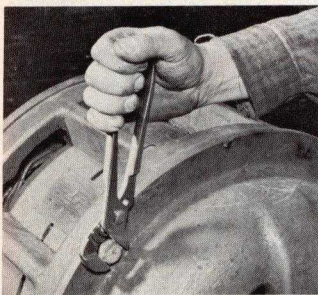
Adequate range. In selecting wrenches, a study should be made of the range of nut and bolt sizes encountered on the various jobs. Thought should also be given to any clearance or accessibility problems that may exist. As an example, in choosing combination open-end box wrenches, it might be well to provide both the long and short series in the required range of openings. It may be that the shorter length, in many cases, will overcome accessibility problems. In others, the additional leverage offered in the long series may be of prime importance.

Detachable sockets and their various drive components make it possible for the operator or mechanic to practically “tailor-make” wrenches to fit the job.

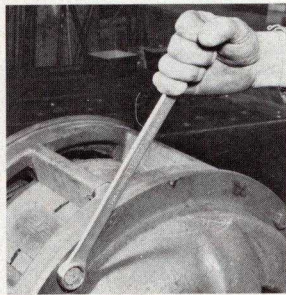
In addition, the proper organization of tools in sets saves mechanic's time by eliminating needless lost time involved in getting forgotten tools or substituting for lack of proper tool assortment. There is no chance of the mechanic being a “hip-pocket” operator, when an adequate range of tools is readily available.

PROPER SELECTION AND SAFE USE OF HAND TOOLS

Correct use. The assumption that everybody knows how to use the more common wrenches and hand tools is not borne out by accident records. Wrenches that are "pushed" instead of "pulled", screwdrivers that are used as levers or pry-bars, and pliers used as a substitute for wrenches (Fig. 5) are just a fraction of the long list of improper uses that appear on accident reports.



ROUNDED corners inevitably follow when pliers are used on nut- or bolt heads. Fig. 5.



BOX TYPE of wrenches on nut and bolt heads give firm grip and safe, strong leverage. Fig. 6.

A continuing educational program in the correct and safe use of wrenches and tools is essential to hand-tool economy and safe working habits. Such a program should begin with instructions that give the worker a thorough understanding of the purpose and limitations of each tool. He must be made to realize that a tool, like his fingers, is an extension of his hand. The use and care of these tools are the basis of his skill and trade.

Proper care. Keeping tools clean, properly lubricated, and in a good state of repair is essential to hand-tool economy. To promote proper tool care, good housekeeping should be encouraged. One of the best ways to assure good housekeeping is to see that adequate tool boxes, chests, and cabinets are provided for all types of work.

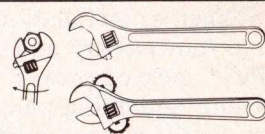
For small jobs to be done away from the work bench out on location, use tool boxes that can be easily carried yet provide space and compartments to keep tools in an orderly fashion. For larger jobs, mobile cabinets should be provided, cabinets that can be easily "wheeled" to the job. This encourages the use of correct tools for the job by making it easy to have an adequate selection of tools right at hand.

Having the right tool at the right time can best be assured by organizing tools in sets. This should be done by studying the tool requirements for various types of maintenance, installation, and construction work. Once this has been done, carefully select the hand tools required, in an adequate range of sizes and styles, and provide proper storage and transportation through the right choice of tool boxes and mobile cabinets.

Provide the necessary educational material to encourage correct use and proper care and you will be well on your way to hand-tool economy and safety.

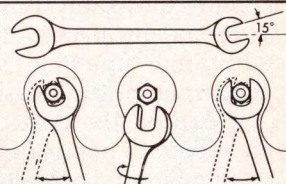
TYPICAL TOOL APPLICATIONS

ADJUSTABLE WRENCHES. Always adjust worm so that jaws fit snugly. Use the locking model to secure the opening adjustment for repeated use on nuts or bolt heads of the same size. Worm and movable jaw should be cleaned and oiled occasionally to reduce wear.



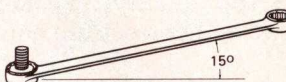
SAFETY TIP "Pull" rather than "push" on the wrench handle, with the wrench head placed on the nut or bolt in the position illustrated.

SINGLE-DOUBLE HEAD OPEN END WRENCHES. Jaws of most open end wrenches are at a 15° angle to the handle. This allows complete rotation of hex nuts in only 30° swing by "flopping" the wrench.



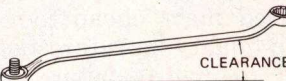
SAFETY TIP Fully engage jaws with nut. Under no circumstances should handle be hammered or extended with pipe for extra leverage. Use a striking face wrench which is designed for loosening frozen nuts or to set them up tightly.

15° DOUBLE OFFSET BOX WRENCHES. Thin walls for close quarters and long handles for good leverage. 15° offset offers obstruction clearance with ample space for mechanic's hand. 12-pt. box for continuous rotation of nuts in only 30° swing.



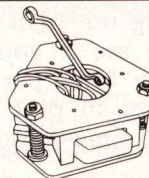
SAFETY TIP It is extremely hazardous to modify this style for tubing work by removing a section of the box wall. Use a flare-nut wrench.

DOUBLE OFFSET BOX WRENCHES. This type, often referred to as a 45° offset wrench, is made in short, long and heavy service styles. In many instances it offers better obstruction clearance, as well as all of the other features of the 15° offset style.



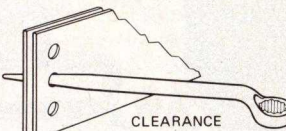
SAFETY TIP Frequently check points for wear. Avoid using on case hardened fasteners.

MIDGET-BOX WRENCHES. Offset design offers the advantage of obstruction clearance over flat, midget open-end styles.



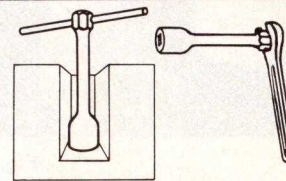
SAFETY TIP Strong, hex box and drop-forged construction provide the additional strength and safe, firm grip required to loosen small, corroded or frozen hex nuts sometimes encountered in carburetor and electrical work.

STRUCTURAL BOX WRENCHES. This is the ideal type of structural wrench for heavy work. Handles are long and tapered for easy insertion in lining up bolt holes. Offset for obstruction clearance.



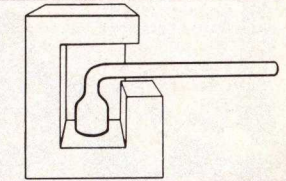
SAFETY TIP Where possible use box rather than open end structural wrench for safer grip on hex nuts.

TEE HANDLE SOCKET WRENCHES. Flanges, caps and assemblies of many kinds have unavoidable obstructions requiring the use of this style wrench.



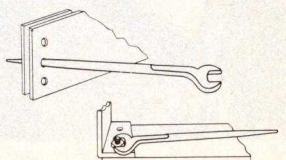
SAFETY TIP Note shanks have hexagon ends. For safe, extra leverage, remove pin and use adjustable wrench. Never use pipe on the tee handles.

OFFSET SOCKET WRENCHES. Certain Obstruction problems require the use of this offset style wrench. Made with hex or square openings.



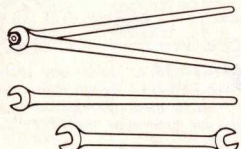
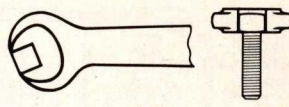
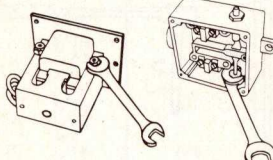
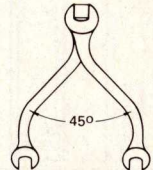
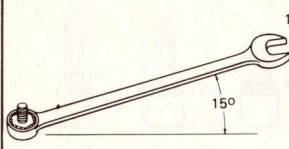
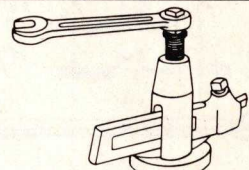
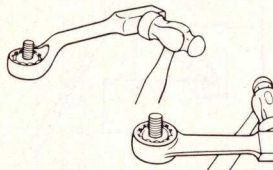
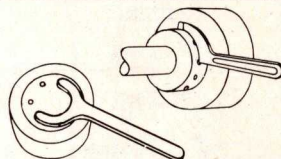
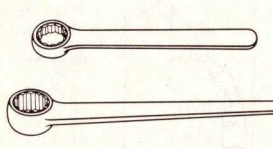
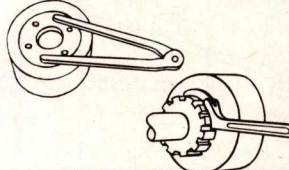
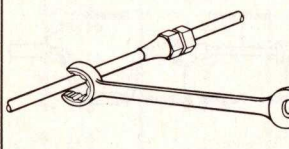
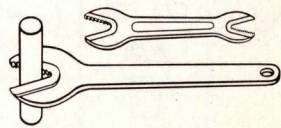
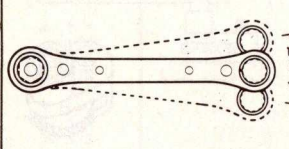
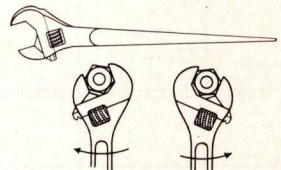
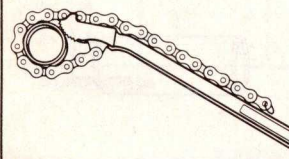
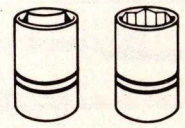
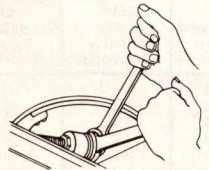
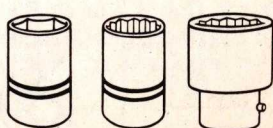
SAFETY TIP Handle lengths are proportioned to opening size to provide adequate leverage. Extending with pipe is not recommended. Try using a socket and long flex handle instead.

CONSTRUCTION AND STRUCTURAL WRENCHES. Both styles of wrench have long handles for extra leverage and are tapered for easy insertion in bolt holes to bring them in line. Structural pattern has the additional advantage of an offset handle for clearing obstructions.

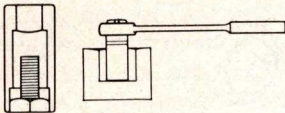
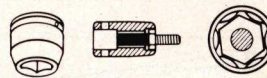
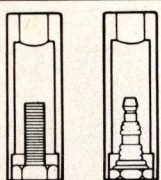
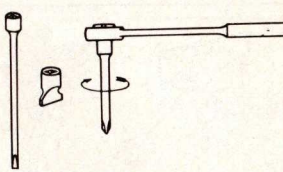
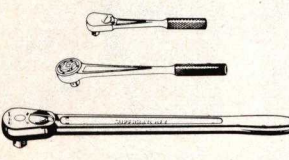
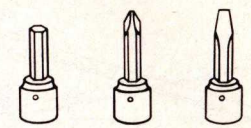
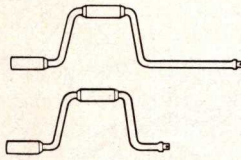
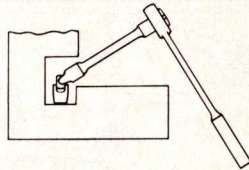
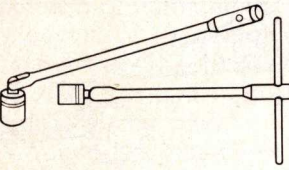
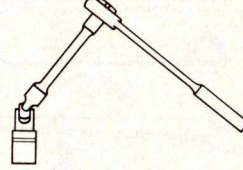
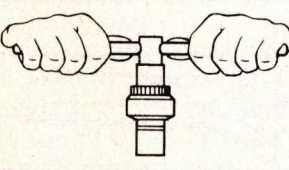
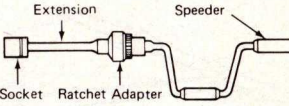
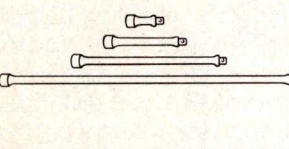
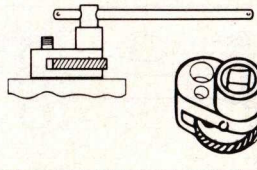
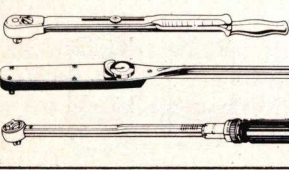
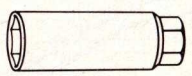
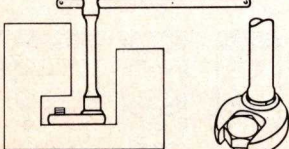



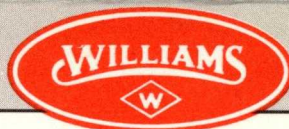
SAFETY TIP In lining up bolt holes on steel work or flanges do not hammer wrenches to effect alignment. Hole and wrench damage can be severe.

PROPER SELECTION AND SAFE USE OF HAND TOOLS

	<p>SINGLE AND DOUBLE HEAD TAPPET WRENCHES. Extremely thin lock or adjustment nuts are often best serviced with tappet wrenches. Their thin heads and extra long handles are a decided convenience when servicing engines while hot.</p> <p>SAFETY TIP Do not grind or thin down faces, walls or jaws on wrenches. This weakens them structurally leaving them highly susceptible to cracking.</p>	<p>SET SCREW WRENCHES. Head heights of set screws are greater than ordinary bolt heads and require wrenches of more than average head thickness. Jigs, fixtures and machine tools involving frequent adjustment, most often, use hardened set screws.</p> <p>SAFETY TIP Thick heads and 3-point contact offer greater safety and longer life than regular open ends.</p> 
	<p>MIDGET 15° AND 150-75° WRENCHES. For assembly, adjustment and repair of electrical components and instruments, these wrenches offer a choice of opening angle to meet the peculiarities that exist in this type of equipment.</p> <p>SAFETY TIP Wrenches that are merely stamped or punched out from flat stock are bulky and loose fitting and do not offer the safe, snug-fitting, slim-jaw performance of drop-forged wrenches.</p>	<p>"S" OR CAR WRENCHES. Square nuts require a 90° swing for complete rotation with most open end wrenches. The "S" design permits flopping the wrench to reduce swing to 45°.</p> <p>SAFETY TIP This style is favored by industries where square nuts and bolt heads are commonly used. The safest wrench is one designed for the job.</p> 
	<p>OPEN-END BOX WRENCHES. This design, made in long and short patterns, is particularly useful in tight spots. Both ends have the same opening size. The box head is offset 15° from the plane of the handle for obstruction clearance.</p> <p>SAFETY TIP For the safety minded, this is one of the best styles to carry in a kit. With two head types the one best suited to the job can be used.</p>	<p>TOOL POST AND SQUARE BOX WRENCHES. Machine tools and industrial equipment are often supplied with wrenches of this type where numerous set screw adjustments are continuously required.</p> <p>SAFETY TIP Head thicknesses are proportioned to grip the full height of screw heads regardless of size. Do not substitute with regular open ends.</p> 
	<p>STRIKING FACE BOX WRENCHES. These wrenches are designed for heavy work where large nuts must be set up tight or frozen nuts loosened. Anvils are proportioned to opening size.</p> <p>SAFETY TIP Unless obstructions require the use of the offset style, it is safer to use the straight pattern.</p>	<p>SPANNER WRENCHES. Pin, face and hook style spanners are made to many standard dimensions for turning packing glands and adjustable collars, etc.</p> <p>SAFETY TIP Pins and hooks are accurately machined for proper fit. Do not use "home-made" tools.</p> 
	<p>REGULAR AND HEAVY 12-PT. BOX WRENCHES. These styles offer a firmer, safer grip than is possible with open end wrenches. The heavy duty style provides extra strength in limited areas through their higher head walls which also give full contact area on large hex nuts.</p> <p>SAFETY TIP Use the heavy duty, "high-collar" style for maximum safety under extreme torquing.</p>	<p>ADJUSTABLE SPANNER WRENCHES. Made in pin and hook styles. Each size will service several sizes of adjusting collars, lock nuts, rings and bearings.</p> <p>SAFETY TIP Although hooks and pins are tempered for long wear, discard if ends become worn or chipped.</p> 
	<p>FLARE-NUT WRENCHES. Designed for use on flare nuts and fittings on tubing assemblies for hydraulic, pneumatic and air conditioning equipment. The hex open-box slips over the tubing. Thick head face prevents marred fittings in tightening.</p> <p>SAFETY TIP Tube opening slot of box head is located at 22-1/2° to the axis of handle for easiest, safest use.</p>	<p>BULL DOG WRENCHES. These wrenches will grip pipe, square, hex or round shapes or any others that will fit between their strong tough jaws. Often used for holding while nuts, sleeves, collars and connectors of various types are being turned. The Bull Dog wrench is a popular style with railroads and shipyards.</p> <p>SAFETY TIP Do not use after teeth have become rounded. Either file sharp or replace wrench.</p> 
	<p>RATCHETING BOX WRENCHES. While this type does not offer the clearance advantages of the fixed-box type, its ratcheting feature is a decided convenience. The smaller sizes require only 180° and larger sizes only 150° swing to completely rotate hex nuts.</p> <p>SAFETY TIP Keep ratcheting mechanism in good working order by occasional lubrication with light oil.</p>	<p>ADJUSTABLE CONSTRUCTION WRENCH. Always tighten worm securely before using. Use tapered handle to line up bolt hole.</p> <p>SAFETY TIP Position wrench to turn toward the fixed jaw.</p> 
	<p>CHAIN WRENCH. With this type of tool, successive bites can be taken without removing the wrench from the work. It is particularly useful in unusually close quarters. Certain types of oil filters are also best serviced with this style wrench.</p> <p>SAFETY TIP Teeth must be kept sharp. Never let them become rounded. At the first sign of wear they can be easily re-sharpened with a medium file.</p>	<p>REGULAR 4 AND 8-POINT SOCKETS. Designed expressly for square nuts and bolt heads, such as found on set, machine, and lag screws, stove bolts and nuts. Made in 1/4", 3/8" and 1/2" drives with openings up to 1".</p> <p>SAFETY TIP Use wherever possible in preference to open end wrenches for safer, four sided grip.</p> 
	<p>CHECK NUT OR THIN WRENCHES. Unusually thin heads for servicing extremely thin adjusting and lock nuts found on many types of machines. Made in single and double head patterns with openings from 13/32" to 1-11/16".</p> <p>SAFETY TIP These wrenches are guaranteed amply strong for intended purpose, not for severe service.</p>	<p>REGULAR 6 AND 12-POINT SOCKETS. Plus rapid seating, the 12-point style requires only half the swing of hex sockets when used with non-ratcheting drivers. All sockets in the 1" drive have safety attachment device for positive locking with drivers.</p> <p>SAFETY TIP Use 6-point sockets when servicing undersize or badly worn nuts. Guarantee is void when hand sockets are used on impact guns.</p> 

PROPER SELECTION AND SAFE USE OF HAND TOOLS

	<p>EXTRA DEEP 8-POINT SOCKETS. Particularly useful in running down and taking off lock nuts. Under certain conditions, it is possible to avoid the use of an extension by using an extra deep socket.</p> <p>SAFETY TIP It is always well to remember that the safest, most efficient socket and driver assembly is the one made up of the fewest drive parts.</p>		<p>POWER DRIVE SOCKETS. Made of extra tough alloy steel, specially heat-treated to withstand the constant shock and pounding involved in electric and pneumatic impact nut setting and power nut running. Surface drive sockets are designed to contact the flats rather than the corners of hex nuts and have the advantage of self-seating as required on multiple nut runners. Magnetic styles are used for self-tapping screws.</p> <p>SAFETY TIP Two "don'ts" particularly apply to power sockets. Do not substitute bent nails for the proper retention methods. Do not use hand type sockets on power equipment.</p>																		
	<p>EXTRA DEEP 6 AND 12-POINT SOCKETS. Designed for use on spark plugs and nuts where the bolt or stud extends considerably beyond the surface of the nut face.</p> <p>SAFETY TIP Where obstructions will permit, use a deep socket for clearance rather than a regular socket and extension.</p>		<p>REGULAR AND PHILLIPS SCREWDRIVERS. Ideal where leverage is required beyond that provided by the average screwdriver. Various driver combinations and the convenience of ratcheting action make these tools invaluable.</p> <p>SAFETY TIP Use of extensions and adapters with these attachments should be avoided for best rigidity.</p>																		
	<p>REVERSIBLE RATCHETS. As with other tools having mechanical parts, ratchets should receive good care for best service and longest life. With regularity, ratchets should be immersed in light machine oil overnight. Rotate or spin ratchet to flush out dirt or hardened lubricant and to remove excess oil.</p> <p>SAFETY TIP Extensions or "persuaders" should not be used on ratchet handles. Use a larger drive size.</p>		<p>HEX AND SCREWDRIVER BITS AND SOCKETS. Replaceable bits extend the detachable socket system to driving hollow head, slotted and Phillips screws. Adapter sockets are made in 1/4", 3/8", 1/2" drives.</p> <p>SAFETY TIP Combine with various drivers to make safe, efficient tools to meet almost any situation.</p>																		
	<p>SPEEDERS. Various extensions and universal joints combine readily with speeders to reach many otherwise inaccessible places. In 1/2" drive Ratchet Adapter and Speeder make an excellent combination.</p> <p>SAFETY TIP When using speeders use sockets of the same drive size. It is risky to adapt up or down.</p>		<p>UNIVERSAL SOCKETS. Nuts in very restricted areas can sometimes be reached only with a universal socket. Some spaces are so tight that they will not even permit the use of a socket and universal joint. Made in 3/8" and 1/2" drives with 6 and 12-point openings from 3/8" to 3/4". Operating range is approximately 130°.</p> <p>SAFETY TIP Be sure socket is fully seated on nut. Use at least angle possible for safest operation.</p>																		
	<p>FLEX HANDLES. Occasional lubrication of the flex joint and retaining ball and spring will reduce wear. Maximum leverage in relation to drive size is "built-in" on most flex handles.</p> <p>SAFETY TIP Additional leverage gained by extending handle invites injury and is sure to damage tool.</p>		<p>UNIVERSAL JOINTS. While universal joints may be used up to angles of 65°, the lesser the angle the more efficient the operation. Retard wear with lubrication.</p> <p>SAFETY TIP Universal joints should never be used as right angle drivers. This type of work should be done with flex or sliding tee-handles.</p>																		
	<p>SLIDING T-HANDLES. Excellent as an offset tool, spinner or for two-hand use. This driver combines readily with sockets, extensions, universals and adapters to make a wide variety of highly useful tool combinations in all drive sizes.</p> <p>SAFETY TIP This is another tool where temptation to extend leverage with pipe should be avoided.</p>		<p>RATCHET ADAPTERS. The same lubrication instructions used for ratchets apply also to the ratchet adapter.</p> <p>SAFETY TIP In an assembly using the ratchet adapter place it as close to the operator as possible for safe, convenient access to the shift lever.</p>																		
	<p>EXTENSIONS. Extensions will engage with sockets and drivers more readily by occasionally lubricating the ball and spring on the male end and cleaning out the female end. It is unwise practice to build extension on extension. Use a single extension of the proper length.</p> <p>SAFETY TIP Use the shortest extension possible on all jobs to assure safe, rigid working conditions.</p>		<p>STUD REMOVERS. The knurled eccentric is specially hardened to resist the extreme wear to which this part is subjected. Eccentric has two pivot holes to be interchanged according to diameter of stud.</p> <p>SAFETY TIP Replace knurled eccentric at first sign of wear. Liberal use of penetrating oil should always be a pre-requisite of stud removal.</p>																		
	<p>TORQUE WRENCHES. Precision torque measuring tools should be handled with more than the normal care. Avoid first over-tightening a fastener with a conventional wrench before applying torque wrench.</p> <p>SAFETY TIP Never exceed the maximum reading of the tool. In continuous use it is best to stay within 75% of its rated capacity.</p>		<p>SPARK PLUG SOCKETS. The most popular spark plugs, currently in use, require a 13/16" hex opening. These specially designed sockets made in 3/8" drive only, are ideal for use in restricted quarters. Rubber insert holds and protects plug.</p> <p>SAFETY TIP In unusually tight spots take advantage of the hex male on the top of the socket.</p>																		
	<p>CROWFOOT ATTACHMENTS. By coupling with extensions and drivers, such as offset and flex handles, the operator can work these attachments into some extremely tight spots. Made in 3/8" drive only with openings 3/8" to 11/16".</p> <p>SAFETY TIP Accessibility of some nuts is only possible in a safe manner with crow-foot attachments.</p>		<p>ADAPTERS. Adapters are available for use on sockets with attachments of larger or smaller drive sizes. See table.</p> <p>SAFETY TIP Caution must be exercised not to use the full leverage of drivers when adapting to sockets of a smaller drive size.</p> <table><tr><th>Originating Drive Size</th><th>Can be Adapted DOWN To Drive Sockets in This Drive Size</th><th>Can be Adapted UP To Drive Sockets in This Drive Size</th></tr><tr><td>1/4</td><td>—</td><td>3/8</td></tr><tr><td>3/8</td><td>1/4</td><td>1/2</td></tr><tr><td>1/2</td><td>3/8</td><td>3/4</td></tr><tr><td>3/4</td><td>1/2</td><td>1</td></tr><tr><td>1</td><td>3/4</td><td>—</td></tr></table>	Originating Drive Size	Can be Adapted DOWN To Drive Sockets in This Drive Size	Can be Adapted UP To Drive Sockets in This Drive Size	1/4	—	3/8	3/8	1/4	1/2	1/2	3/8	3/4	3/4	1/2	1	1	3/4	—
Originating Drive Size	Can be Adapted DOWN To Drive Sockets in This Drive Size	Can be Adapted UP To Drive Sockets in This Drive Size																			
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1/2	3/8	3/4																			
3/4	1/2	1																			
1	3/4	—																			



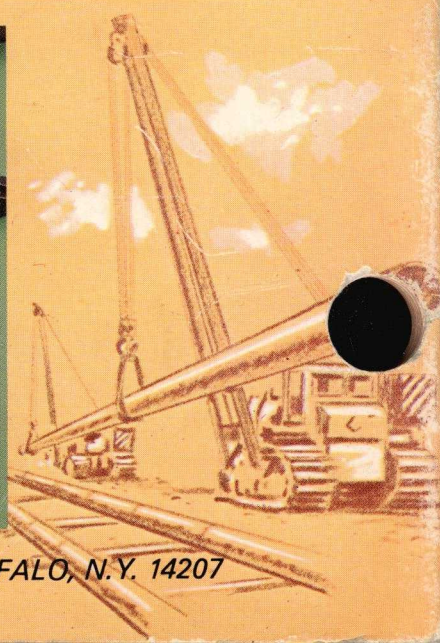
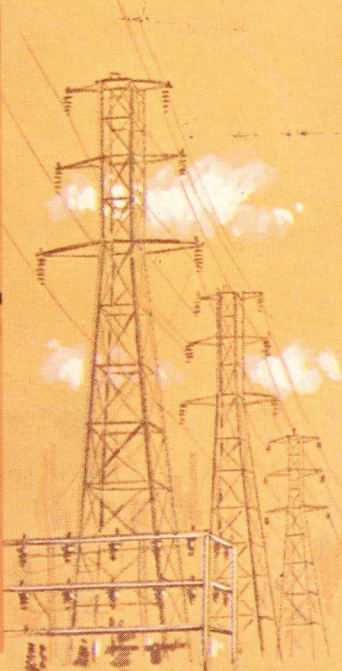
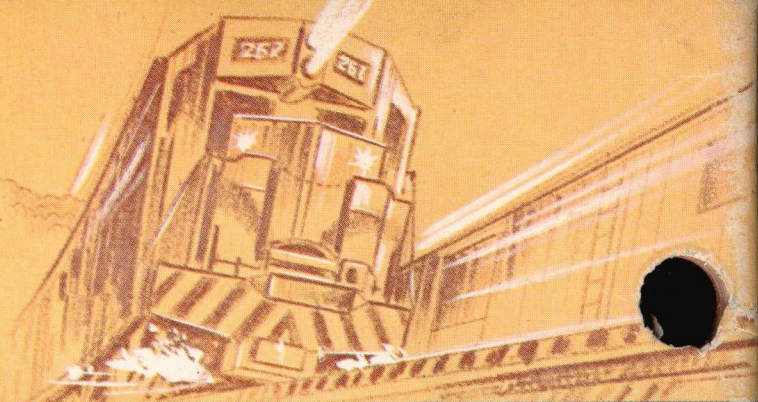
NOMINAL WRENCH OPENINGS AS RELATED TO AMERICAN NATIONAL STANDARDS INSTITUTE BOLT AND NUT SIZES

Nominal Wrench Opening	REGULAR SERIES Hex and Square Nuts and Bolts		HEAVY SERIES Hex and Square Nuts Hex Head Bolts		FINISHED SERIES Regular and Thick Hex Nuts Hex Head Bolts		For Hex Head CAP SCREWS Diameters of Screws	For Square Head SET SCREWS Diameters of Screws	For Square or Hex Machine Screw Nuts and Stove Bolt Nuts Size or Diam.
	For Nuts For These Sizes of Bolts	For Heads of Bolts of These Diameters	For Nuts For These Sizes of Bolts	For Heads of Bolts of These Diameters	For Nuts For These Sizes of Bolts	For Heads of Bolts of These Diameters			
5/32									No. 0 & 1
3/16									No. 2 & 3
7/32								No. 10	
1/4								No. 12	
								1/4	No. 4
5/16								5/16	No. 5 & 6
11/32									No. 8
3/8								3/8	No. 10
7/16	1/4	1/4			1/4	1/4	1/4	7/16	No. 12 & 1/4
1/2		5/16	1/4		5/16	5/16	5/16	1/2	
9/16	5/16	3/8	5/16		3/8	3/8	3/8	9/16	5/16
19/32									
5/8	3/8	7/16				7/16	7/16	5/8	3/8
11/16									
3/4	7/16	1/2	3/8		7/16	1/2	1/2	3/4	
25/32									
13/16	1/2	9/16				9/16	9/16		
7/8	9/16		1/2	1/2	9/16			7/8	
15/16		5/8	9/16		5/8	5/8	5/8		
1	5/8		5/8	5/8				1	
1- 1/16									
1- 1/8	3/4	3/4			3/4	3/4	3/4	1-1/8	
1- 1/4			3/4	3/4				1-1/4	
1- 5/16	7/8	7/8			7/8	7/8	7/8		
1- 3/8								1-3/8	
1- 7/16			7/8	7/8					
1- 1/2	1	1			1	1	1	1-1/2	
1- 5/8			1	1					
1-11/16	1-1/8	1-1/8			1-1/8	1-1/8	1-1/8		
1-13/16			1-1/8	1-1/8					
1- 7/8	1-1/4	1-1/4			1-1/4	1-1/4	1-1/4		
2			1-1/4	1-1/4					
2- 1/16	1-3/8	1-3/8			1-3/8	1-3/8	1-3/8		
2- 3/16			1-3/8	1-3/8					
2- 1/4	1-1/2	1-1/2			1-1/2	1-1/2	1-1/2		
2- 3/8			1-1/2	1-1/2					
2- 7/16	1-5/8	1-5/8			1-5/8	1-5/8			
2- 9/16			1-5/8	1-5/8					
2- 5/8	1-3/4	1-3/4			1-3/4	1-3/4			
2- 3/4			1-3/4	1-3/4					
2-13/16	1-7/8	1-7/8			1-7/8	1-7/8			
2-15/16			1-7/8	1-7/8					
3	2	2			2	2			
3- 1/8			2	2					
3- 3/8	2-1/4	2-1/4			2-1/4	2-1/4			
3- 1/2			2-1/4	2-1/4					
3- 3/4	2-1/2	2-1/2			2-1/2	2-1/2			
3- 7/8			2-1/2	2-1/2					
4- 1/8	2-3/4	2-3/4			2-3/4	2-3/4			
4- 1/4			2-3/4	2-3/4					
4- 1/2	3	3			3	3			
4- 5/8			3	3					
4- 7/8		3-1/4							
5			3-1/4						
5- 1/4		3-1/2							
5- 3/8			3-1/2						
5- 5/8		3-3/4							
5- 3/4			3-3/4						
6		4							
6- 1/8			4						

* Square Only.

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